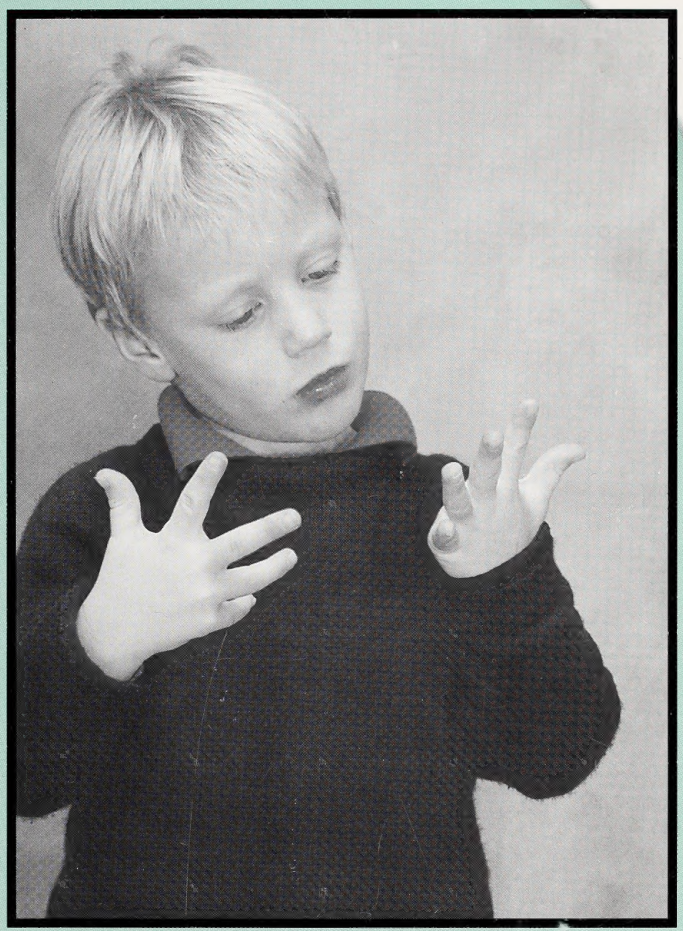
Grade One

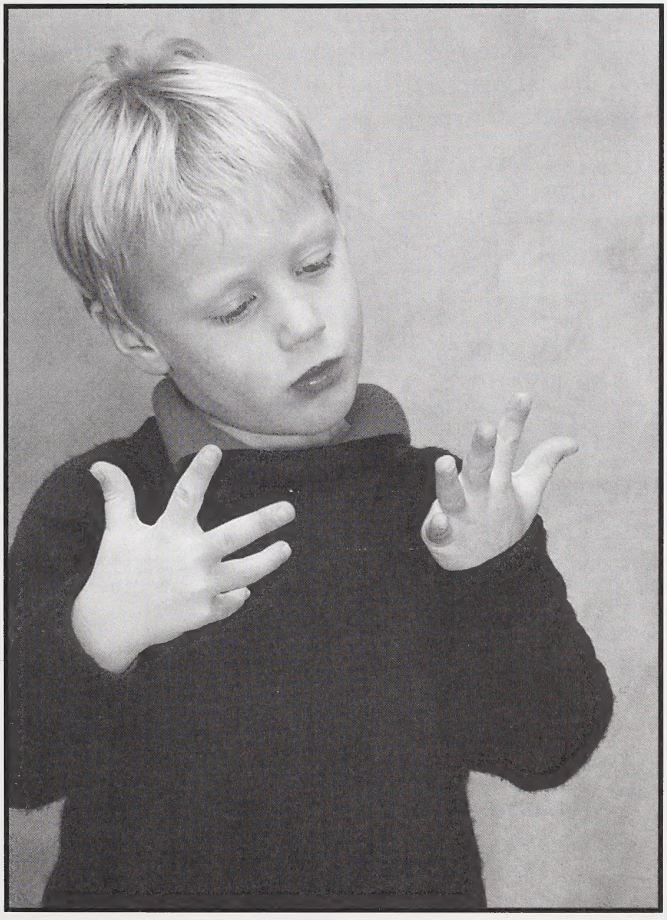
Mathematics



Module 1

Distance Learning

Mathematics Module 1



Distance Learning

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Module 1
Student Module Booklet
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This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	

The Learning Technologies Branch has an Internet site that you may find useful. The address is as follows:

http://www.learning.gov.ab.ca/ltb

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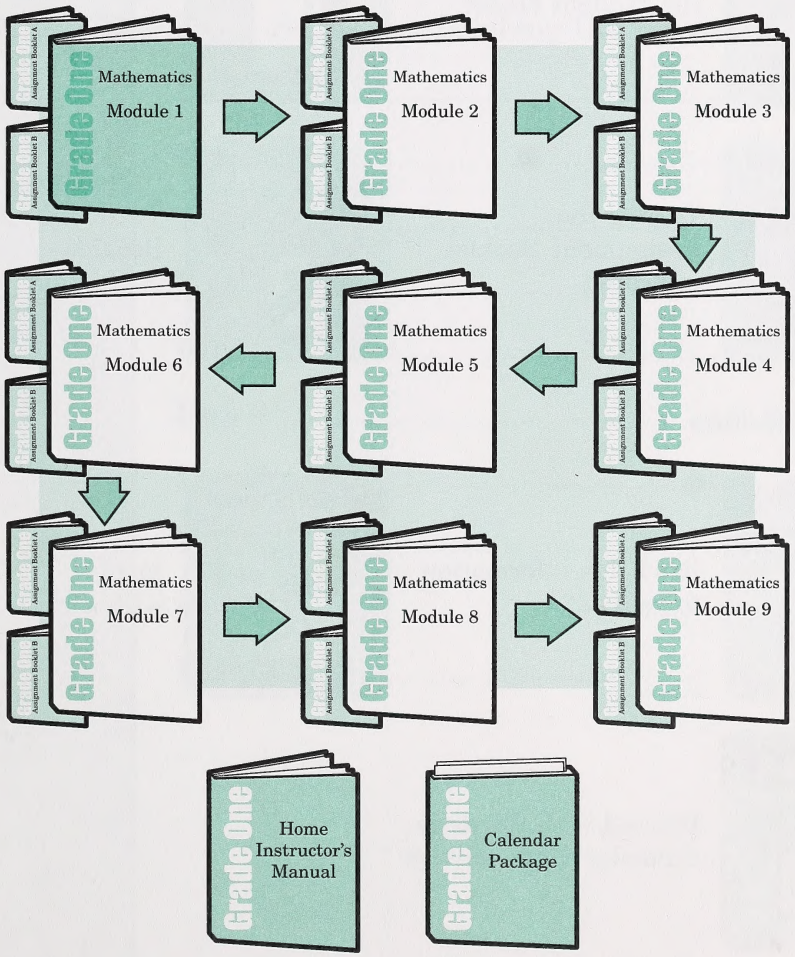
Course Overview and Basic Components

Welcome to the Grade One Mathematics program.

The booklet you are presently reading is called a Student Module Booklet. It will take you through the course and show you, step by step, what to do with the student and how to do it. The activities you do will prepare the student for the assignments.

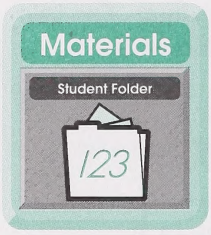
Grade One Mathematics contains nine modules. Each module has two Assignment Booklets. The module you are working on is highlighted in a darker colour. The two other basic course components—a Home Instructor's Manual and a Calendar Package—are also highlighted.



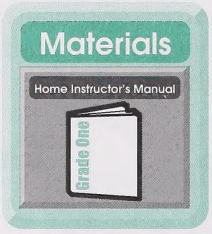
Visual Cues

Throughout the Grade One Mathematics program, you will find visual cues that indicate a material needed or an activity to carry out. Read the following explanations to discover what each icon prompts you to do.

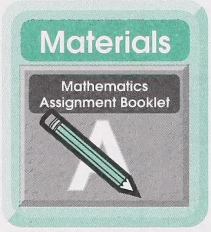
Icons: Materials



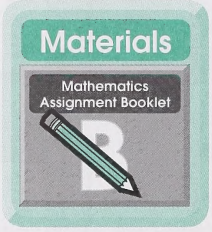
Place an item in the Student Folder.



Turn to the Home Instructor's Manual for further information.



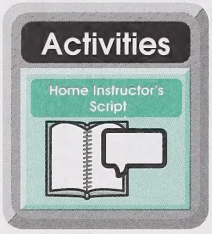
Turn to the Assignment Booklet indicated.



Turn to the Assignment Booklet indicated.

Icons: Activities

Read this information to yourself.



Read this information with the student.

Proceed with the daily Calendar Time activity.

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Mathematics Module 1 Overview

Welcome to Grade One Mathematics Module 1.

Before entering Grade One, most children have had many personal experiences in sorting objects and counting from one to ten. Module 1 will give the child further problem-solving opportunities to develop sorting and counting concepts and skills.

This module also introduces four measurement topics: length, capacity, mass, and time. The student will learn the language of measurement while involved in problem-solving activities.

Children are natural problem solvers. Throughout this module, students are encouraged to solve problems in a variety of ways. There are certain problem-solving strategies that are valuable at the primary level, and the following are used throughout this program:

- acting out problems
- predicting and testing strategies
- looking for and extending patterns
- making models or diagrams of problems

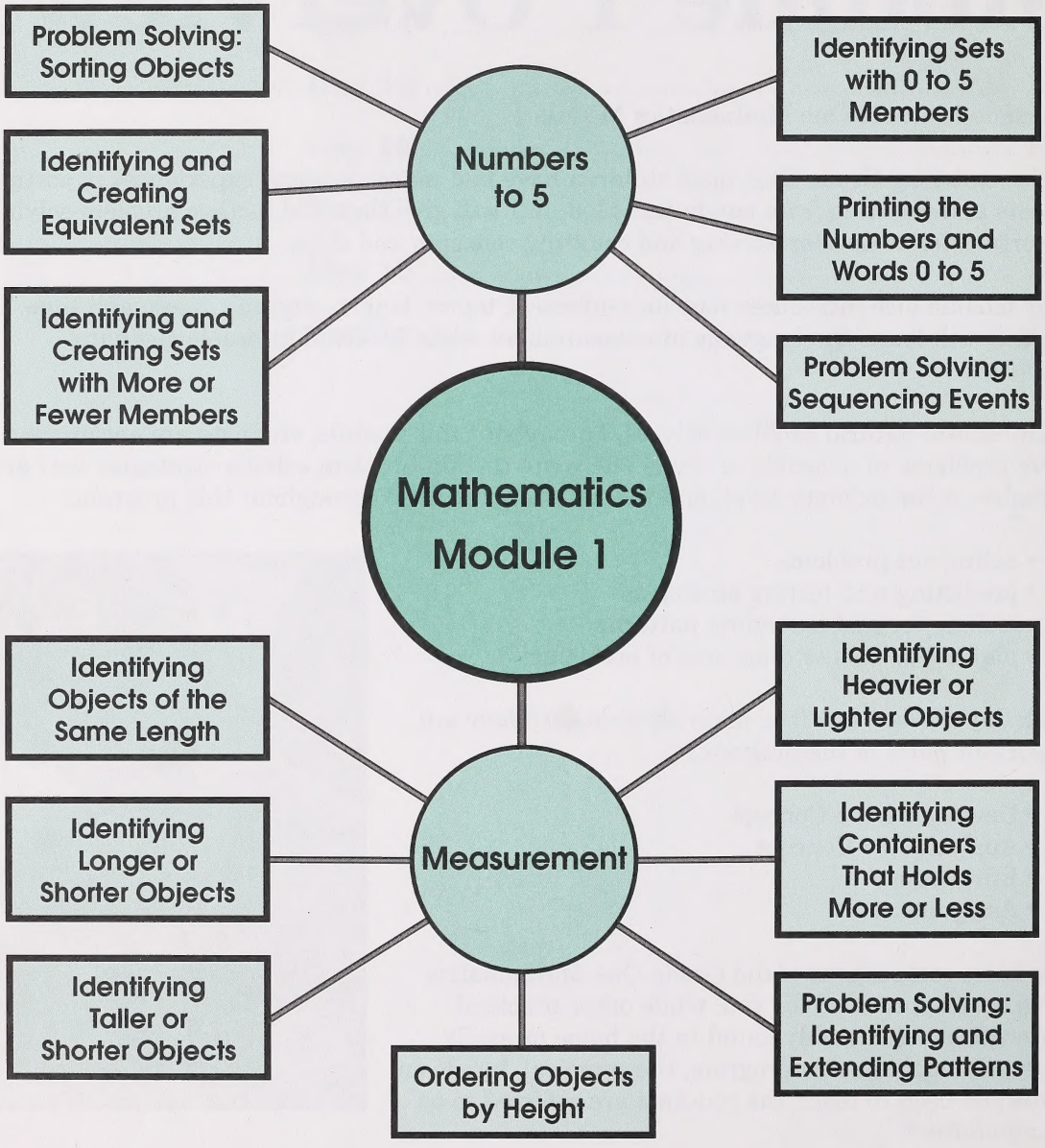
Each day's lesson has four main elements. All four are important parts of the program.

- Developing the Concept
- Applying the Concept
- Enrichment
- Assignments

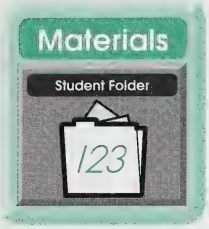
The basic components of the Grade One Mathematics program are provided for you, while other practical materials are commonly found in the home or easily made. Throughout this program, the practical, hands-on materials used to teach the concepts are referred to as *manipulatives*.

Module Web Chart

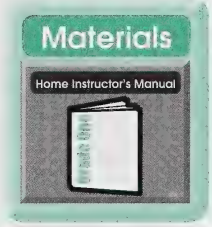
This chart highlights the main mathematical topics for this module.



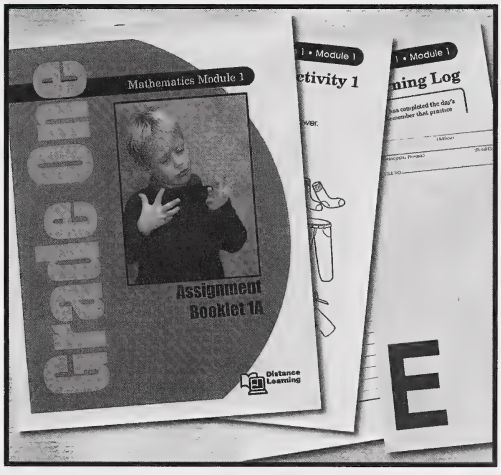
Mathematics Module Submissions



Place completed items in the Student Folder when you see this icon. On Day 9 and Day 18 of each module, you will find a checklist in the Assignment Booklet to help you compile items for submission to the child's teacher. The teacher will let you know when to provide these items for marking.



Note: The Student Folder is not included with the basic course components. Refer to the Home Instructor's Manual for information on the Student Folder.



Calendar Time

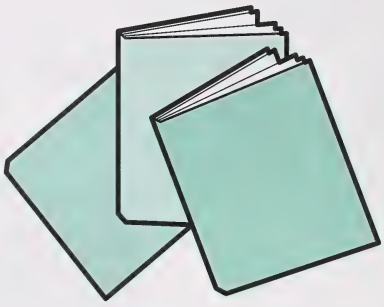
Many essential concepts are learned through the calendar activities that begin each lesson. If your student is not enrolled in the accompanying Grade One Thematic program, refer to the Calendar Package for information, activities, and resources.

Additional Resources

The basic mathematics resources that the student needs for this module are provided. You could extend these basic resources with additional ones from a public or school library. Listed below are concept-related books, songs, and rhymes that could enrich this module. A trip to the library in search of these resources may be a delightful beginning to your module. In addition, you could investigate the many games and computer programs on the market that may enhance your student's learning opportunities.

Number Concept Resources

Books



Anno, Mitsumasa. *Anno's Counting House*. 1977.
Cleveland, David. *The April Rabbits*. 1988.
Ehlert, Lois. *Fish Eyes: A Book You Can Count On*. 1990.
Gardner, Beau. *Can You Imagine...?* 1987.
Giganti, Paul Jr. *How Many Snails?* 1988.
Hawkins, Colin, and Jacqui Hawkins. *When I Was One*. 1990.
Hayes, Sarah. *Stamp Your Feet Finger Rhymes*. 1988.
Heyboer O'Keefe, Susan. *One Hungry Monster*. 1989.
Hutchins, Pat. *One Hunter*. 1982.
Kitchen, Bert. *Animal Numbers*. 1987.
Knight, Joan. *Tickle-Toe Rhymes*. 1989.
Leedy, Loreen. *A Number of Dragons*. 1985.
Lewis, Paul Owen. *P. Bear's New Year's Eve Party*. 1985.
Lindbergh, Reeve. *The Midnight Farm*. 1987.
Reid, Barbara. *Two by Two*. 1992.
Williams, Jenny. *One, Two, Buckle My Shoe*. 1987.
Yektai, Niki. *Bears in Pairs*. 1987.

Songs and Rhymes

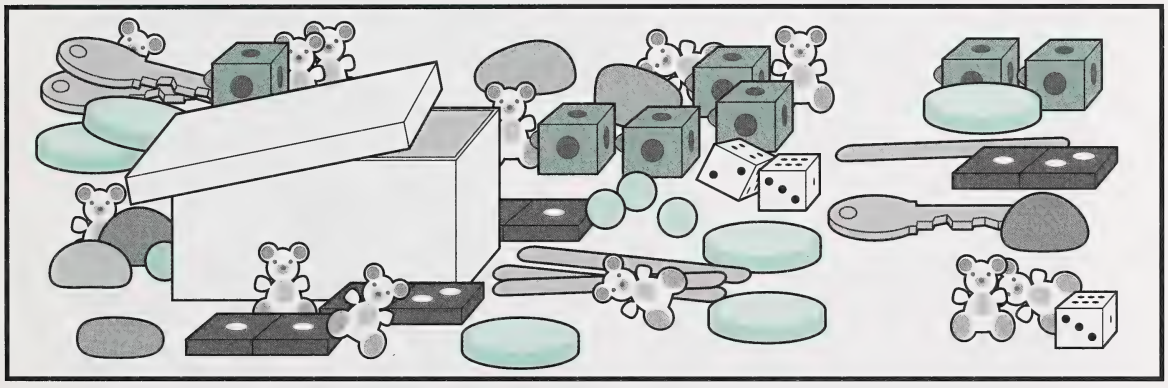
"Five Little Ducks"
"Five Little Frogs"
"Five Little Monkeys"
"Five Little Pumpkins"
"Four Hugs a Day"—Charlotte Diamond
"Let's Do the Numbers Rumba"
"Old John Braddle-um"
"Once I Caught a Fish Alive"
"One Man Went to Mow"
"One Potato, Two Potato"
"One, Two, Buckle My Shoe"
"One, Two, Three, Four, Five"
"Over in the Meadow"
"10 Crunchy Carrots"—Charlotte Diamond
"Ten Little Kittens"
"There Were Ten in a Bed"
"This Old Man"

Measurement Concept Resources

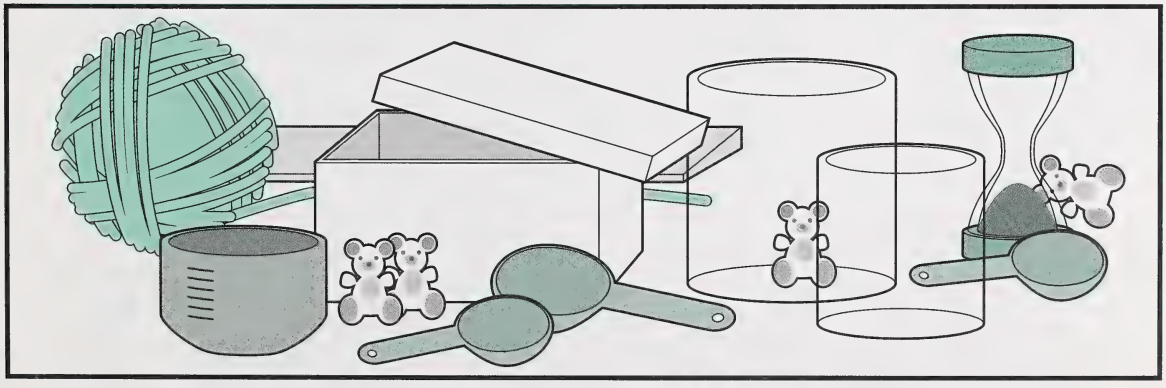
Books

Asch, Frank. *Popcorn*. 1987.
Bourgeois, Paulette. *Big Sarah's Little Boots*. 1987.
Burton, Virginia Lee. *The Little House*. 1978.
Carle, Eric. *The Grouchy Ladybug*. 1986.
Hutchins, Pat. *You'll Soon Grow into Them, Titch*. 1983.
Kalan, Robert. *Blue Sea*. 1979.
Lionni, Leo. *The Biggest House in the World*. 1987.
Oppenheim, Joanne. *Have You Seen Birds?* 1987.
Random House Publishers. *My First Look at Sizes*. 1990.
Stinson, Kathy. *Big or Little?* 1983.

Number Concept Manipulatives



Measurement Concept Manipulatives



Encourage your student to help collect manipulative materials such as cutlery, clothespins, coins, and small toys. You will use these materials for the practical application of mathematical concepts.

Social
Physical
Intellectual
Creative
Emotional
Home Schooling:
Reaching the Whole Child

Day 1

Calendar Time

Time recommended: 30 minutes

If your student is enrolled in the accompanying Grade One Thematic program, you will already have completed Day 1, Calendar Time before turning to this Mathematics Module 1 booklet. In that case, proceed directly with the remainder of Math Time.

If your student is not enrolled in the accompanying Thematic program, then refer to the Calendar Package for further information before proceeding with today's lesson.

Focus for Today

Time recommended: 45 minutes

- problem solving: sorting objects into sets

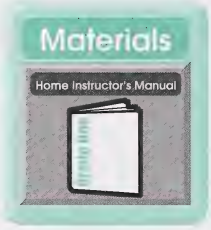
Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten.

containers	like	short	straight line
sort/sorting	other	sorting rule	each
set	different	objects	broken line
near	long	same	separate

Materials Required

Certain materials are required on a regular basis throughout the Grade One program. These are the basic school supplies, such as pencils, paper, glue, and scissors. If your student is not registered in the accompanying Grade One Thematic program, then prepare a box containing these materials for your use during the Grade One Mathematics program.



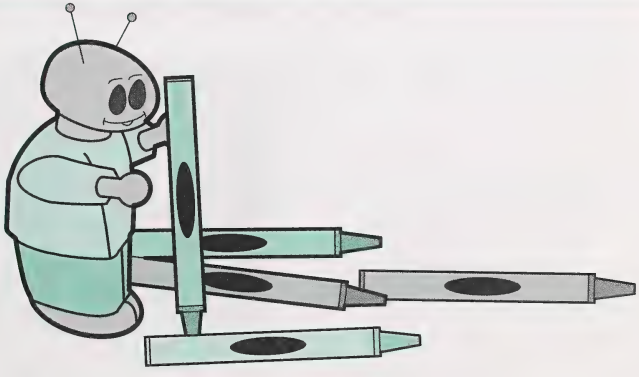
See the Home Instructor's Manual for further information on the Master List of Required Materials.

- box containing required materials from the master list
- collections of objects to sort, for example, coins, cutlery, toys, books, cards, or magazines
- collections of small toys to sort, for example, stuffed animals, games, and puzzles (optional)
- margarine tubs or other plastic **containers** to hold collections of small toys (optional)
- envelopes (optional)

Save all materials and pictures for future activities. Plastic tubs and paper envelopes (new or used) are convenient containers for this purpose. Label containers with the names of their contents.

Today, the student will **sort** objects into sets. A **set** is a group of objects related in some way. **Sorting** is a basic thinking skill—one the child will use throughout life to organize and understand the environment. When involved in sorting activities, encourage your student to examine items, play with them, talk about them, and give detailed descriptions. You can expand awareness of object characteristics by asking questions such as the following:

- Why did you put these objects together?
- Did you sort them by kind, colour, shape, or size?



Developing the Concept

Read the following rhyme aloud to the student several times.

Mary Had a Little Lamb

Mary had a little lamb;
Its fleece was white as snow,
And everywhere that Mary went
The lamb was sure to go.

It followed her to school one day,
Which was against the rule.
It made the children laugh and play
To see a lamb at school.

And so the teacher turned it out,
But still it lingered **near**
And waited patiently about
Till Mary did appear.

Why does the lamb love Mary so?
The eager children cry;
Why, Mary loves the lamb, you know,
The teacher did reply.

Ask the following question.

What pets do you or your friends have?

Record the child's list of pets on unlined paper.

Would the title "My Pets and My Friend's Pets" be suitable for your list?

We can call your list a **set** of pets. A set is a group of things that are **like** each other.

What **other** pets could a person have?

Record another list as the child answers. You may offer suggestions to develop a workable list of pets.

What could we call your other **set** of pets?

Could we call it "Other Kinds of Pets"?

Is there another way to **sort** these pets into **different** sets?

For example, could we sort them into pets with **long** tails or **short** tails?

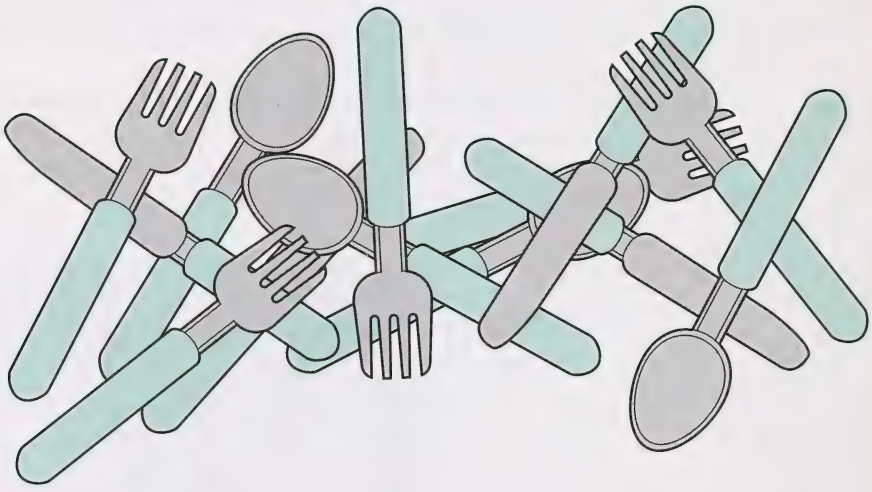
The way that we sort things into sets is called our **sorting rule**. A sorting rule helps to sort **objects** into special groups called sets.

Applying the Concept

With the student, collect five or six varieties of one type of object. Possibilities include coins, cutlery, toys, books, cards, or magazines.

Mix up the collections. Ask the student to sort the objects into sets and describe the sorting rules used.

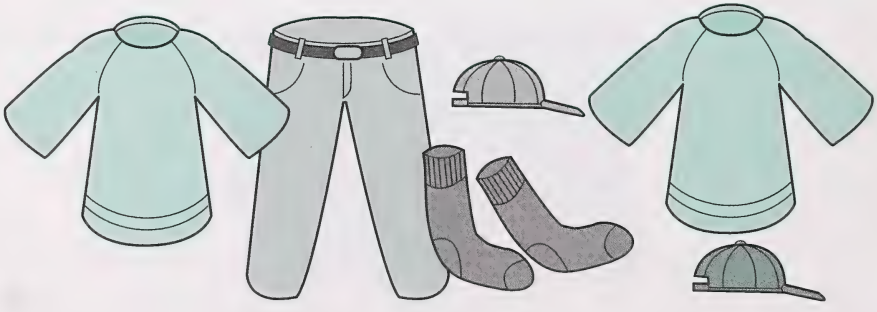
Tell how the objects in each set are the **same**.



Materials

Mathematics Assignment Booklet

Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 1: Assignment 1.



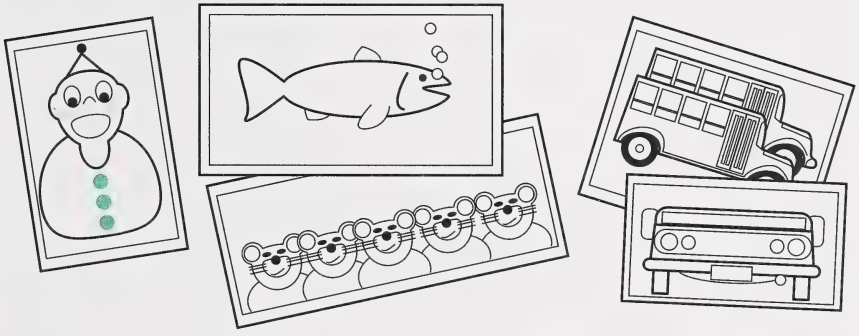
Enrichment (optional)

Enrichment activities are always optional. If you think at this point that the student needs extra help or a challenge, you may postpone the final assignment and Learning Log until after one or more of these activities.

Note: Use of these optional activities may require you to pace the student's progress in the rest of the module to accommodate special needs. For example, you may delay the final assignment until the student is ready for it. In that case, review the day's work before your student does the assignment.

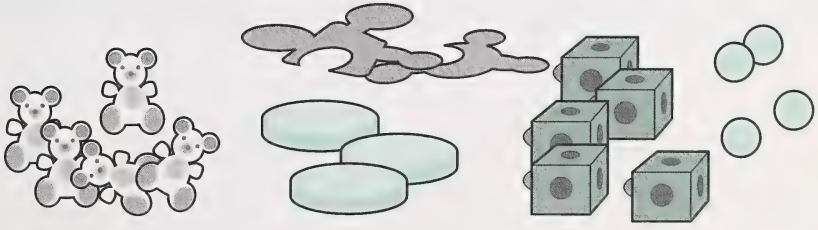
1. Picture Hunt

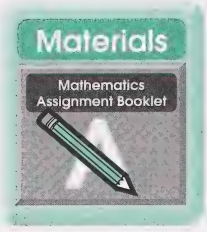
Cut out interesting pictures from old magazines or catalogues and ask your student to sort the pictures into sets. There may be sets of vehicles, people, animals, and so on.



2. Toy Shuffle

Have the student sort toys into sets. For example, make a set of stuffed animals, a set of games, and a set of puzzle pieces.





Turn to Mathematics Assignment Booklet 1A, and follow the directions to do all three pages of Day 1: Assignment 2.

Then complete Day 1: Learning Log. Under Student's Thoughts, print a sentence or two telling what the child thinks about this day's mathematics learning. For example, was it easy or hard to sort items into sets? Why was it easy or hard?

Day 2

Calendar Time

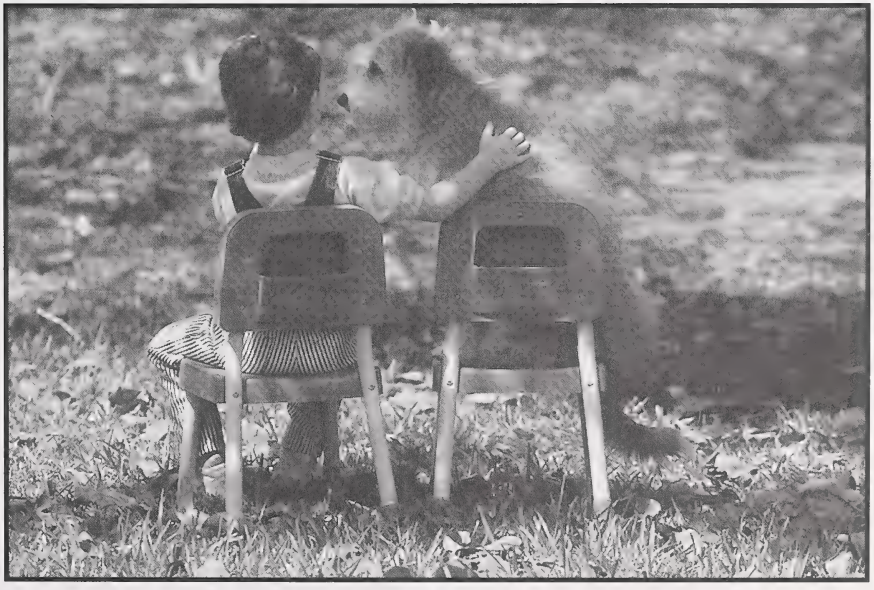
Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, refer to the Calendar Package for further information.

Focus for Today

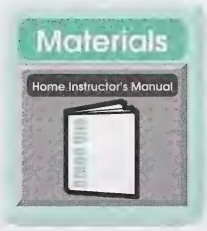
Time recommended: 45 minutes

- matching equivalent sets
- drawing equivalent sets



Vocabulary (spoken only)

one-to-one correspondence	triangle	equivalent sets
match	numbers	pairs
equivalent	circle	shape
the same	rectangle	



Materials Required

- box containing required materials from the master list (See the Home Instructor's Manual.)
- three pieces of candy (optional)
- sets of small objects, for example, shells, toys, buttons, pasta, coins, keys, or stones
- red and blue paper triangles, circles, and rectangles
- four spoons, four forks, and four bowls
- several pairs of shoes (optional)
- yarn or straws

Keep the paper shapes and small objects for future activities.

Today, the student will use **one-to-one correspondence** to **match** objects. Encourage the child to use the terms **equivalent** and **the same**. Demonstrate these terms in personally relevant ways, such as pairing shoe to foot, mitten to hand, button to buttonhole, and pencil to eraser.

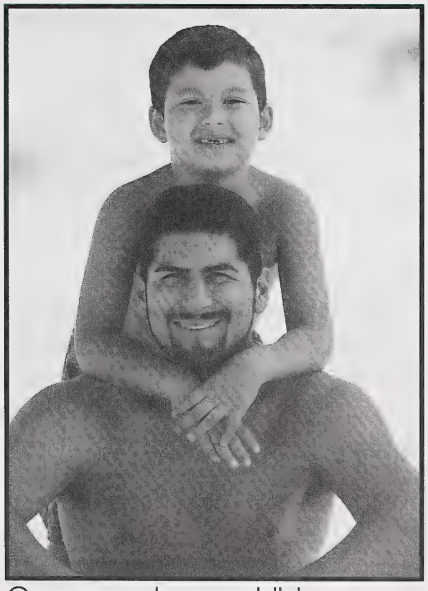
Some physical arrangements make it easier to match objects in a one-to-one correspondence. Consider the following sets of **triangles**.

Set A

Set B

Because one line of triangles in Set A is longer than the other, some children will say that this particular set contains more than Set B does. When the triangles are arranged as in Set B, a child can easily see how they match. If necessary, help your student line up objects evenly, from a common starting point.

The concept of one-to-one correspondence is fundamental to the student's understanding of **numbers**. At this time, the student does not need to know how many objects are in a set.



One parent, one child

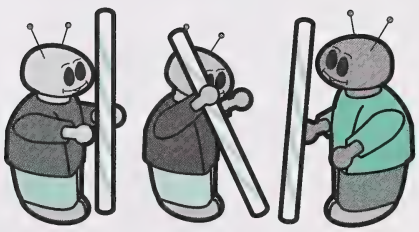
Developing the Concept

Read the following rhyme several times. Encourage the student to read along with you.

At this stage of development, the student may not be reading in the same way you are, but the child is engaged in reading-like behaviour. This develops pre-reading skills.

Hippety-Hop

Hippety-hop to the corner shop
To buy three sticks of candy.
One for you, and one for me,
And one for my friend Sandy.



Act out the rhyme. You could use real candies as props. If three people are not available, have the student choose a doll or an imaginary character for the third role. Then ask the following.

Are there **the same** number of candies as children? How do you know?

Encourage the student to explain by using one-to-one correspondence rather than counting. Repeat this activity a few times by varying the numbers in the rhyme.

When the student appears to have a good understanding of one-to-one correspondence, continue as follows.

> When there are the same **number** of objects in each set, we say the sets are **the same**, or **equivalent**.

Three friends, three smiles

Place two sets of four small objects each in front of the student.

> **Match** 1 object from this set with 1 object from that set.

Show the student how to match using one-to-one correspondence, for example, shell to coin; spoon to bowl; red triangle, circle, and rectangle to blue triangle, circle, and rectangle.

Applying the Concept

Set out the spoons, forks, and bowls that you have gathered. Use the following script.

> Help me match these objects.
>
> Put 1 spoon into each bowl.
>
> We have **equivalent sets** of bowls and spoons because there are the same numbers of bowls and spoons.
>
> Can you match these forks to these spoons to make equivalent sets?

Everyday experiences provide many opportunities to reinforce the concept of equivalent sets. For example, "Do we have enough tickets for each of us to get into the show?" or "Are there enough hotdogs and hotdog sticks for everyone?"

When involved in everyday situations such as these, ask the student to check for equivalent sets. Assist whenever necessary.

Enrichment (optional)

Enrichment activities are always optional. If you think that your student requires extra help or a challenge, you may do these activities now or later.

1. Shoe Shuffle

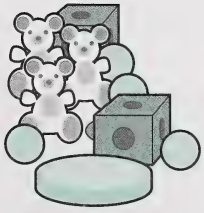
Mix several **pairs** of shoes in a pile and have the student sort them into pairs (equivalent sets).

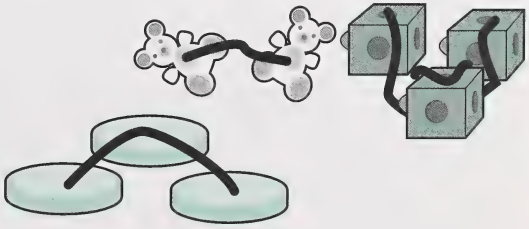
2. Object Match

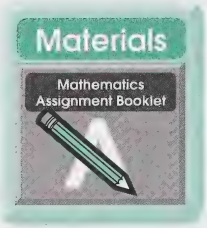
Step 1: Collect a variety of small objects as outlined in Materials Required.

Step 2: Match the objects to make as many equivalent sets as possible.

Step 3: Use yarn or straws to link one object to another by touching both.







Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 2: Assignment 1.

Next, follow the directions to do Day 2: Assignment 2.

Then complete Day 2: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to match equivalent sets.

Day 3

Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, refer to the Calendar Package for further information.

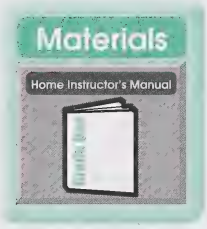
Focus for Today

Time recommended: 45 minutes

- identifying equivalent sets by matching members of sets

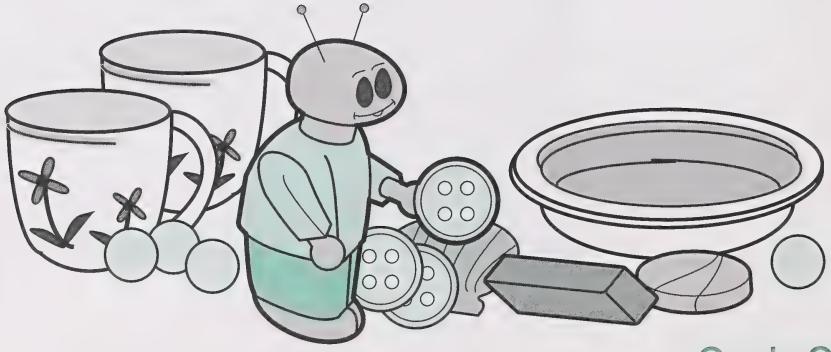
Vocabulary (spoken only)

greater/more	as many	members	check mark
fewer/less	matching the sets	between	



Materials Required

- box containing required materials from the master list (See the Home Instructor's Manual.)
- containers for small objects
- small objects, for example, shells, toys, buttons, pasta, coins, keys, or stones
- large piece of cardboard or large book
- several of each of the following items: place mats, cups, spoons, bowls, napkins (optional)



The student will continue to match objects using one-to-one correspondence. Today, you will review the terms **equivalent** and **the same** and introduce the terms **greater, more, fewer**, and **less**. Remember to emphasize these terms in personally relevant ways, such as matching shoe to foot, mitten to hand, or button to buttonhole.

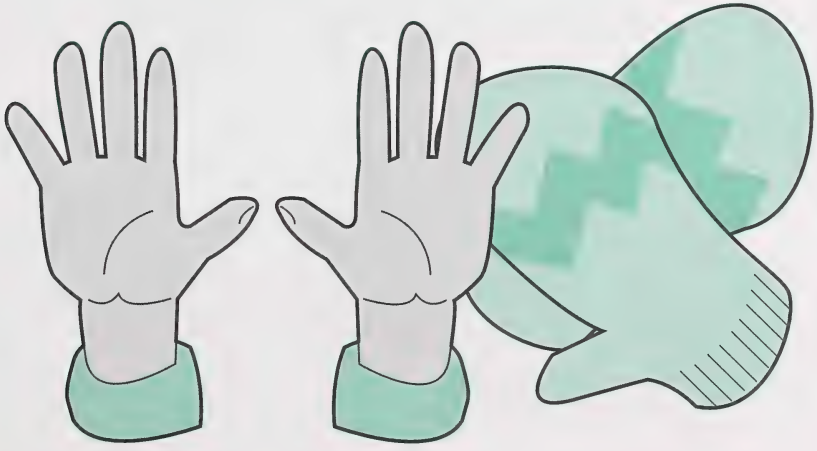
Note: Throughout the Grade One Mathematics program, the terms *fewer* and *less* are used to mean the same thing when they apply to number relationships. In higher grades, the student will learn that *fewer* should be used when referring to something that can be counted. For example,

There are **fewer** apples than oranges.

Less should be used when referring to something that cannot be counted. For example,

There is **less** juice in that cup.

At this stage in the child's development, it is not appropriate to acknowledge the fine distinction between the terms *fewer* and *less*. Therefore, in the Grade One program, these terms will be used interchangeably.



Developing the Concept

Using a variety of items, place a container of one to ten small objects in front of the student. Place a similar container of objects in front of yourself. Ask the following questions.

Are there **as many** objects in your container as there are in mine?

How can you find out? Can you find out by **matching the sets**?

Take turns matching objects from both containers. Repeat by varying the number of objects in each container. Continue your discussion.

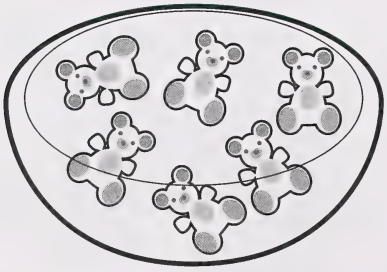
Which container has **more** objects, or a **greater** number of objects?

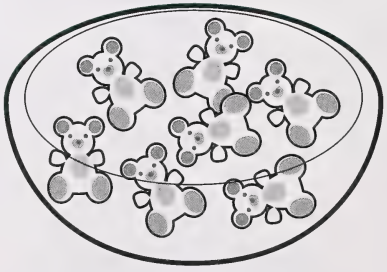
How can we find out?

Which container has **fewer**, or **less**, objects?

How can we find out?

Show me **equivalent sets**, or sets that have **the same** number of **members**.

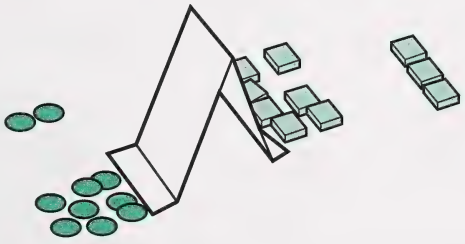




Applying the Concept

On a table **between** two partners, place a cardboard barrier or a large open book. Give each partner ten small objects from which to create a set. When the sets have been created, lift the barrier and use one-to-one correspondence to check for equivalent sets, or equal numbers of members.

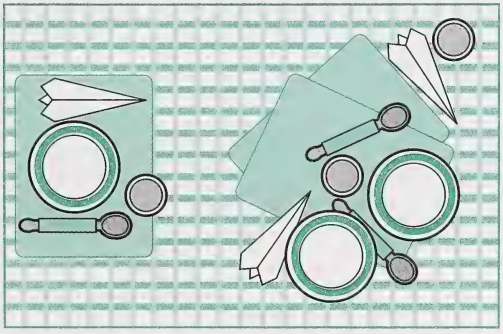
Repeat this activity several times. Encourage the student to use a variety of numbered sets.

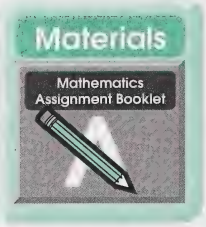


Enrichment (optional)

Set the Table

Give the student several of each of the following items: place mats, cups, spoons, bowls, and napkins. Have the student find equivalent sets by setting the table.





Turn to Mathematics Assignment Booklet 1A, and follow the directions to do the assignment for Day 3.

Then complete Day 3: Learning Log. Under Student's Thoughts, print a sentence or two telling what the child thinks about this day's mathematics learning. For example, what does the student think about personal understanding of the terms **greater/more** and **less/fewer**? Is the child able to explain what these terms mean?

Day 4

Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, then begin with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

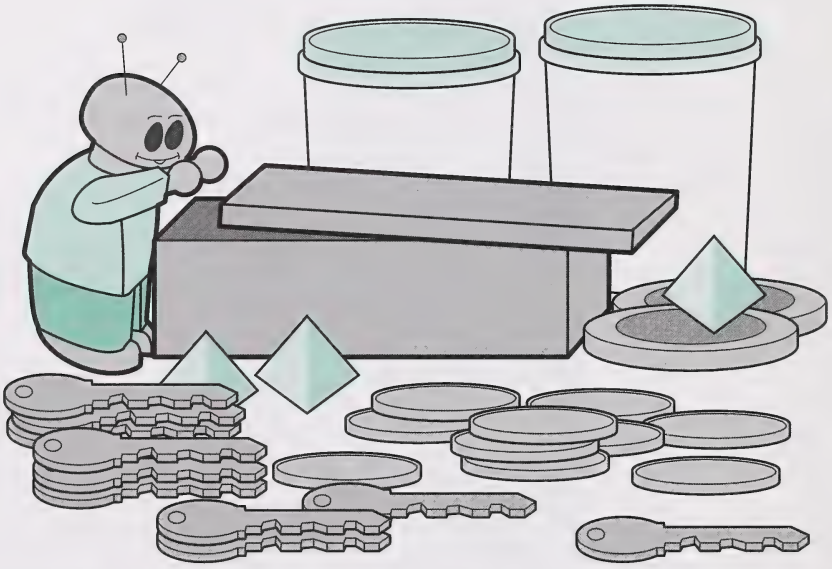
- identifying sets with more and fewer members
- drawing sets with more members

Vocabulary (spoken only)

number	first	groups	equivalent/the same
collection	second	beside	another

Materials Required

- box containing materials from the master list
- two different-coloured sets of shapes or objects, such as buttons, building blocks, or construction-paper shapes
- several sets of ten small objects, such as shells, toys, buttons, pasta, coins, keys, or stones
- envelope
- two identical containers with lids (optional)



In today's lesson, your student will identify sets with more, or a greater number of, objects. These identification activities develop skills that the child will need to further understand the concept of **number**.

Developing the Concept

In front of the student, place the two coloured sets of shapes or objects as outlined in Materials Required. Begin the discussion.

This is a set of blue objects, and this is a set of red objects. (Different colours may be substituted.)

Are there **more**, or a **greater** number of, red objects than blue objects?

How can we find out without counting?

Let's match the **members** of the sets.

Give the student time to match the objects. Repeat this activity several times by changing the numbers in the sets.

Remind your student that it is acceptable to make errors when learning new skills. However carefully you try to work, mistakes do occur. They are part of the learning process. By keeping learning time fun and interesting, the work is less stressful for both you and your student.

Applying the Concept

Place one set of ten small objects in front of the student and one set in front of yourself. From your set of objects, show the student a set of four. Say the following.

> From your **collection** of objects, make a set that shows the same **number** as my set.
>
> How do you know you have the same number in each set? (Each member of the **first** set matches with a member of the **second** set.)

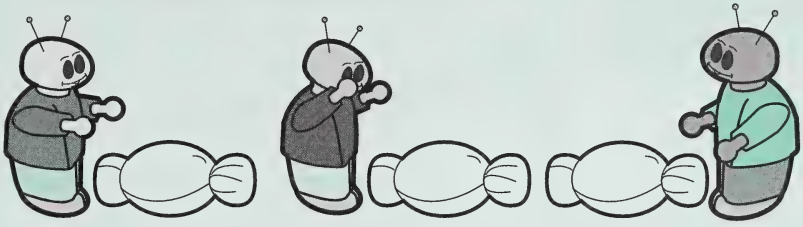
Encourage the student to respond verbally and to act out the one-to-one correspondence actions. Then continue.

> Make a set that shows more than (fewer than) this number.
>
> How do you know there are more (or fewer) objects? (The members do not all match.)
>
> How many more (or fewer) objects are there?

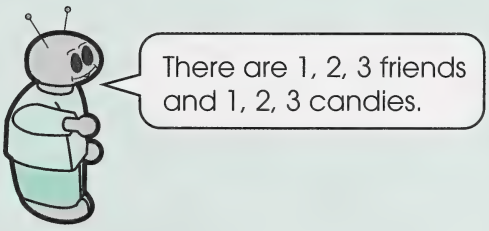
Take turns showing the same number of objects, more than, and fewer than, until the student has practised all of these concepts.

Observe how the student compares the **sets** or **groups**.

- Does the student line up the objects accurately for one-to-one correspondence?

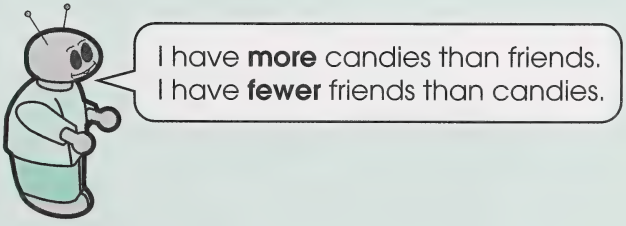


- Does the student count the number in each group?

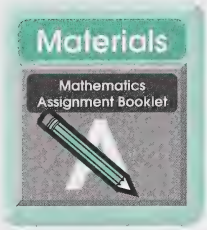


- Does the student appropriately use the words **more** and **fewer**?

- Does the student understand that each situation that involves **more** also involves **fewer**?



Comment on your observations in Day 4: Learning Log.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 4: Assignment 1.

Then follow the directions to complete Day 4: Assignment 2. You will notice that this assignment is four pages long.

Enrichment (optional)

If you choose these activities, you could do them now or later.

1. Sets with More

Step 1: With your student, gather a collection of small objects as outlined in Materials Required.

Step 2: Have the student choose one-half of the objects and give the rest to you.

Step 3: Ask the student to select some objects and make a set.

Step 4: You make a set with **more** objects.

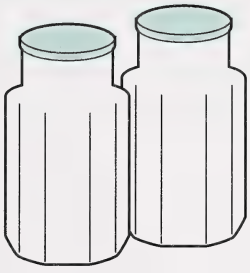
Step 5: Ask the student to check whether your set is correct.

Step 6: Reverse roles and continue this activity.

2. Sounds of More

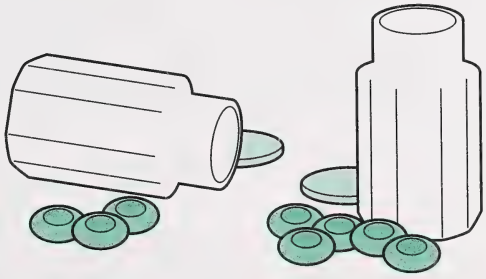
Step 1: Ask your student to do this activity with closed eyes.

Step 2: Put similar objects in each of two identical containers with lids. Put more objects in one. Attach the lids.

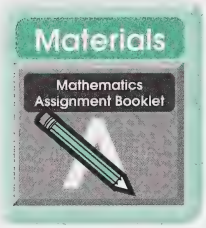


Step 3: Ask the student to shake the containers and guess which one holds more.

Step 4: With the student's eyes open, remove the lids and match the sets to see which container has more.



Step 5: Reverse roles and continue this activity.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 4: Assignment 3.

Then complete Day 4: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy or hard to identify and draw sets with more members? Why was it easy or hard?

Day 5

Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying and drawing sets with fewer members
- identifying sets of one
- printing the number **1** and the word **one**

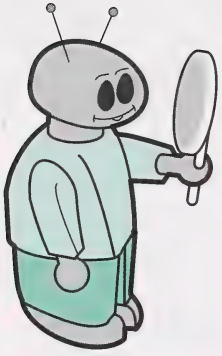
Vocabulary (spoken only)

Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten. The first number word appears on the list below.

fewer/less	front	single	one	corner
big	across	feature	top left	left side

Materials Required

- box containing materials from the master list
- five blue and five red objects (or different colours)
- hand mirror
- modelling clay, pipe cleaners, or trays of sand, flour, or finger paint (optional)



Your student will identify sets with **fewer** objects. These identification activities are important because they help develop skills that the child will need to further understand the concept of **number**.

Developing the Concept

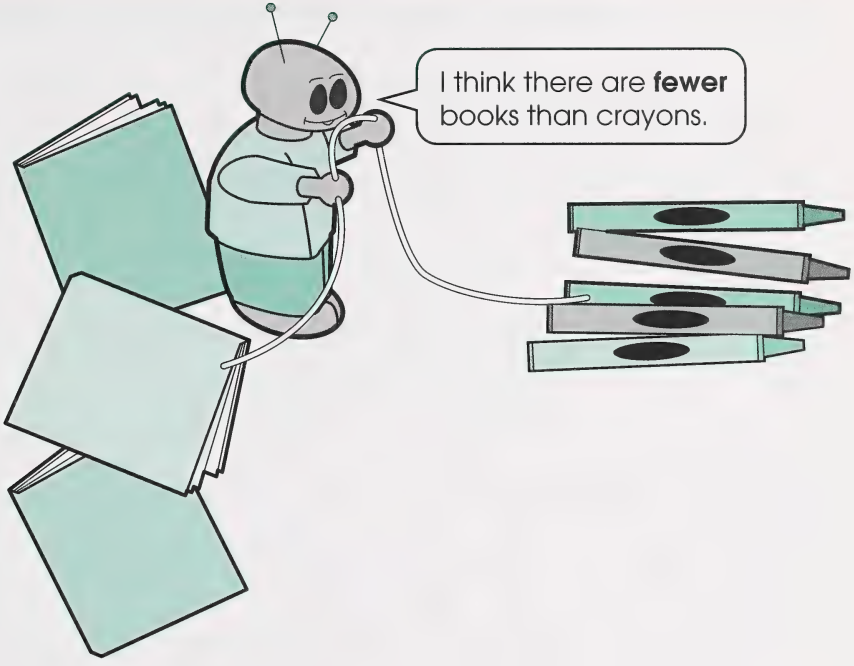
Place four red and five blue objects in front of the student.

Which set has **fewer**, or not as many, objects?

How do you know?

Match the objects from the 2 sets to find out.

Substitute different combinations of numbers to five, and continue to ask the student which set has fewer members.



Give the student a sheet of unlined looseleaf paper and some crayons or felt pens, and state the following.

Draw a **big** house with a yard.

In **front** of the house, draw a street.

There are children playing **across** the street from the house.

Draw the children **across** the street.

There are **fewer** children playing in the yard.

Draw the children in the yard.

How do you know that fewer children are playing in the yard than across the street?

Draw lines to match the children in the 2 sets.

Give the student a hand mirror; then say the following.

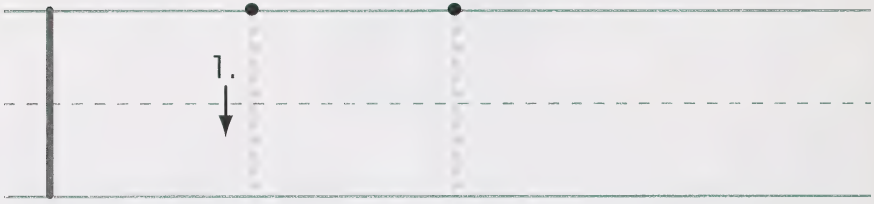
Look in the mirror.

Look for **single** features.
For example, you have 1 nose.

What else do you see that is a single **feature**?

Record responses on lined paper. For example, the student might list one mouth, one neck, and one shirt. Continue the script.

This is what the **number 1** looks like.



See how a number **1** is made. Start at the top line and make a straight line down. Print it on paper or a chalkboard.

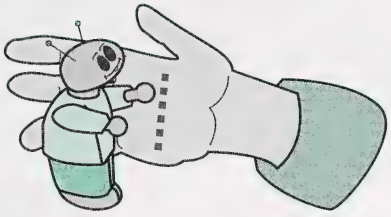
This is the word **one**. Print it.

The word **one** means the same as the number **1**.

Print the word **one**, 2 times. Wait while the student prints.

Make a 1 in the air with your finger.

I will make a number 1 on the palm of your hand, and then you make the number 1 on the palm of my hand.



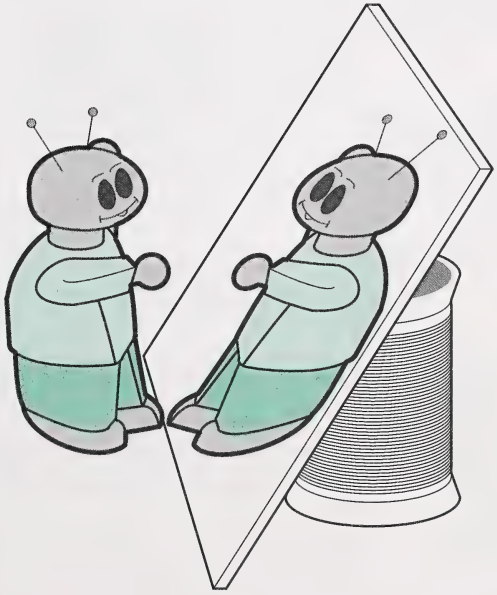
Use the mirror to begin discussion of the number two.

Look in the mirror for sets of the number 2.

Tell me what you see.

Record the child's responses. For example, the student might list two eyes, two ears and two arms.

Discuss the number two in a similar way to that used for discussion of the number one.

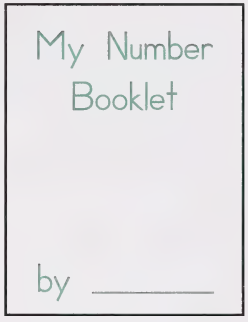


Applying the Concept

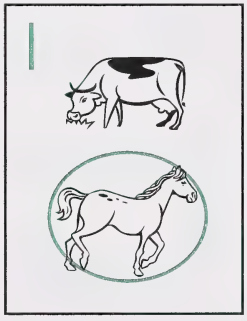
My Number Booklet

Step 1: On an unlined sheet of paper, have the student print the title **My Number Booklet**.

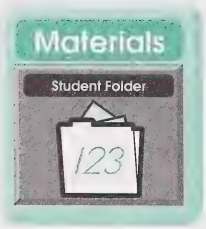
Step 2: Help print the word **by** and the student's full name.



Step 3: On a second sheet of blank paper, have the student print the number 1 in the **top left corner**.



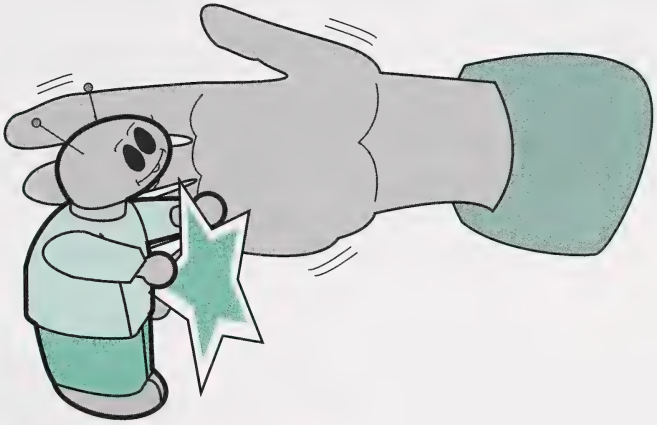
Step 4: Ask the student to draw or cut out and glue on pictures that show sets of one.



Step 5: Have the child circle each set of one. If glue was used, be sure it has dried first.

Step 6: Place the cover and number one pages in the Student Folder. You will add to this booklet in future days.

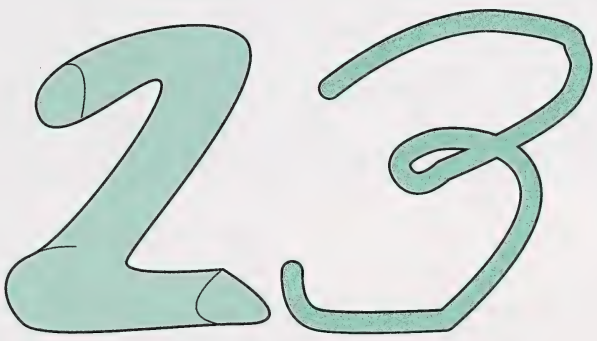
Consider giving the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



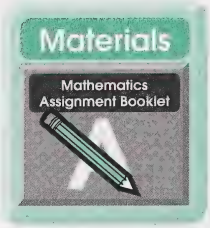
Enrichment (optional)

Number Centre

Set up a number centre where the student can continue to practise forming numbers. Materials such as modelling clay and pipe cleaners work well, or the student could form the numbers in trays of sand, flour, or finger paint.



Keep these number materials and all background pictures, such as the house scene, for future activities.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 5: Assignment 1.

Next, follow the directions to do Day 5: Assignment 2.

Then complete Day 5: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. What activity did the student enjoy doing most, and why?

Day 6

Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying sets of two and three members
- printing the numbers **2** and **3**
- printing the words **two** and **three**

Vocabulary (spoken only)

Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten. Two more of these words appear on the list below.

set	number	three	third
member	top	another	below
how many	downward	first	
more	two	second	

Materials Required

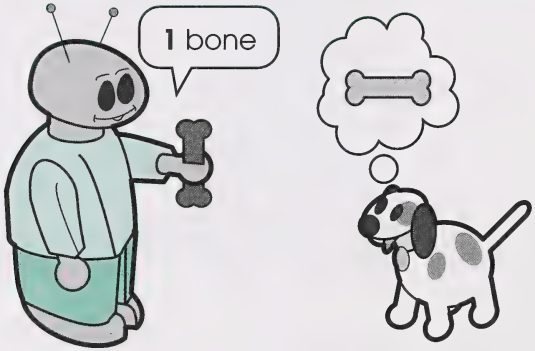
- box containing materials from the master list
- small objects, for example, previously collected shells, toys, buttons, pasta, coins, keys, or stones
- sets of up to three objects, such as one spoon, two pencils, and three apples
- three pieces of string or yarn, each about 50 centimetres long
- animal cutout pictures that were removed from Mathematics Assignment Booklet 1A during Day 4: Assignment 2

Keep all materials, cards, and pictures for use in future activities.

Developing the Concept

Place one small object in front of the student, and say the following.

In front of you is a **set** of 1 object or 1 **member**.



Add one more object, and continue the script.

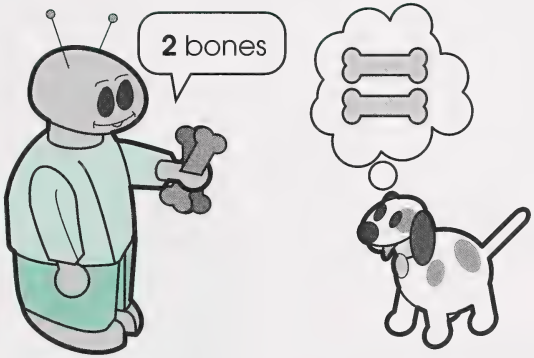
How many objects or members are in this set?

1 and 1 **more** is **2**.

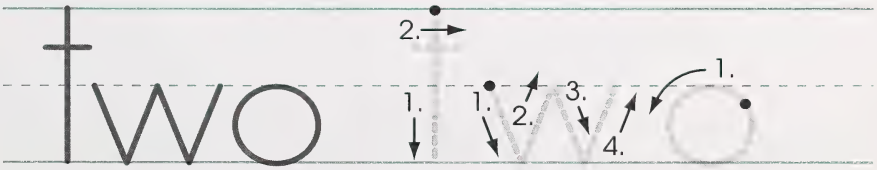
Watch how to print the **number 2**. **Demonstrate on paper or a chalkboard.**

Start at the **top** and move **downward** to print 2.

Print the number **2**, two times on a paper (chalkboard).



Watch how to print the word **two**.



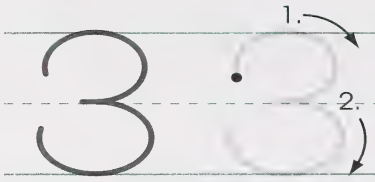
Print the word **two**, 2 times.

Add one more object.

How many members are in this set?

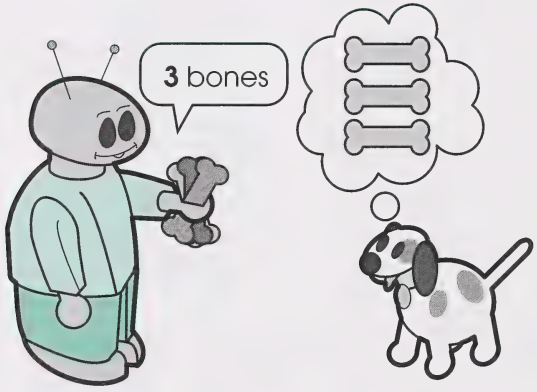
2 and 1 more is **3**.

Watch how to print the number **3**.

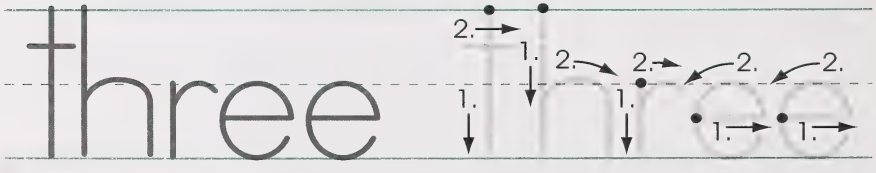


Start at the **top** and move **downward**.

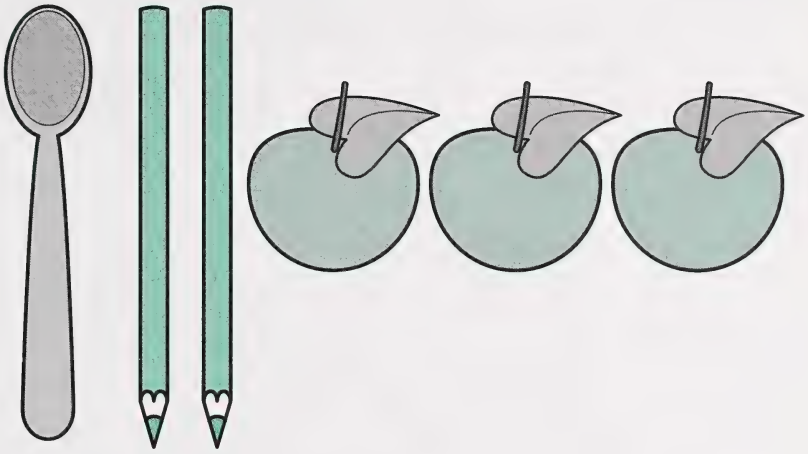
Print the number **3**, three times.



Watch how to print the word **three**.
Then you print it 3 times.



Place several sets of up to three objects each in front of the student. For example, use one spoon, two pencils, and three apples. Give the student three pieces of string or yarn, each about 50 centimetres long.



Use the following script.

I see a set of 1 spoon.

Use your string to circle the set of 1 spoon.

I see a set of 2 pencils.

Circle the set of 2 pencils with **another** string.

I see a set of 3 apples.

Circle the set of 3 apples with another string.

Record the following on a piece of lined paper.

1 spoon

2 pencils

3 apples

Give the student three blank index cards and the animal pictures cut from Assignment Booklet 1A, Day 4: Assignment 2.

Ask the child to print the number 1 on the **first** index card, the number 2 on the **second** card, and the number 3 on the **third** card.

1	2	3

Turn the cards over. Help the student print the word **one** on the back of the number 1 card, the word **two** on the number 2 card, and the word **three** on the number 3 card.

Place the animal cutout pictures and the cards with number sides up in front of the student.

Show me a set of 3 sheep.

Which number card shows **how many** sheep are in this set?

Show me a set of 1 cow.

Which number card shows how many cows are in this set?

Show me a set of 2 dogs.

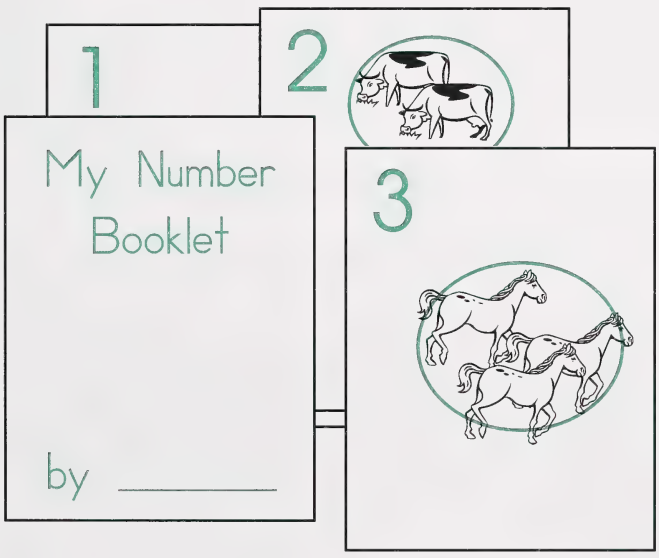
Which number card shows how many dogs are in this set?

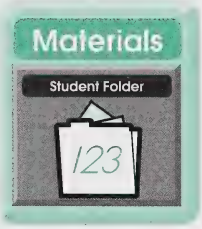
Place the cards with word sides up, and repeat the questions.

Applying the Concept

Have the student continue working on **My Number Booklet** by printing a number 2 in the top left corner of one page and a number 3 on another page. The student may draw or cut out and glue on pictures that show sets of two and three members.

Have your student circle the sets of two and three on each respective page. If glue was used, be sure that it has dried first.





Place these number pages in the Student Folder.

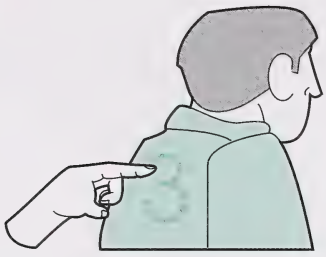
Enrichment (optional)

1. Number Word Practice

Model for the student how to print the number words **two** and **three** on lined paper. Allow ten minutes for the student to practise printing these two number words.

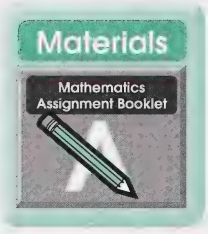
2. Feel the Number

Ask the student to turn away from you. With your index finger, form a number from one to three on the student's back. Have the student guess the number. Reverse roles and continue the activity until the student has identified the numbers one to three.



3. Pat the Number

Take turns patting each other's backs from one to three times and identifying the numbers of pats. If your student is capable of identifying larger numbers, challenge the child to do so.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 6: Assignment 1.

Next, follow the directions to do Day 6: Assignment 2.

Finally, follow the directions to do Day 6: Assignment 3.

Day 7

Calendar Time

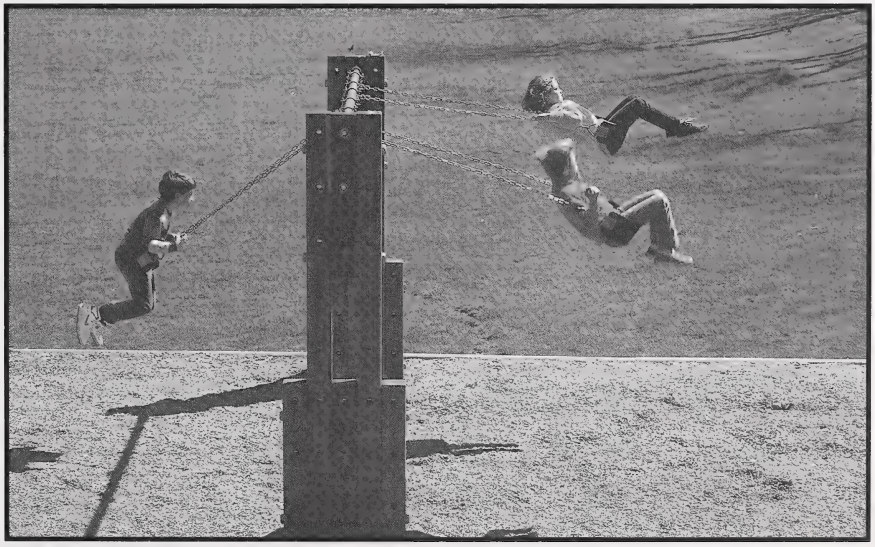
Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- reviewing the terms **fewer** and **more**
- drawing sets of one to three members
- identifying sets and subsets of one to three members
- identifying and printing the numbers **1** to **3**



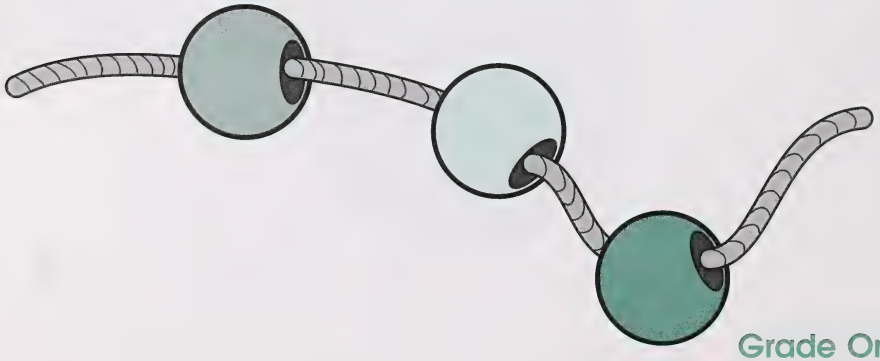
Vocabulary (spoken only)

amount set subset each

Materials Required

- box containing materials from the master list
- groceries, school supplies, or kitchen supplies, for example, apples, oranges, pencils, erasers, knives, and forks
- large paper or plastic shopping bag
- collections of small objects, for example, the shells, toys, buttons, pasta, coins, keys, or stones from other days
- string or yarn pieces used on Day 6
- toothpicks or wooden craft sticks (optional)
- pieces of cardboard slightly larger than the sticks (optional)
- string and coloured beads or buttons

Keep all materials, cards, and background pictures such as barnyard and house scenes for future activities.

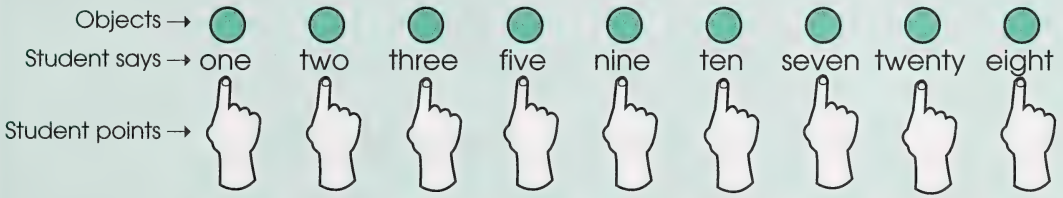


Throughout the Grade One Mathematics program, your student will acquire several counting skills.

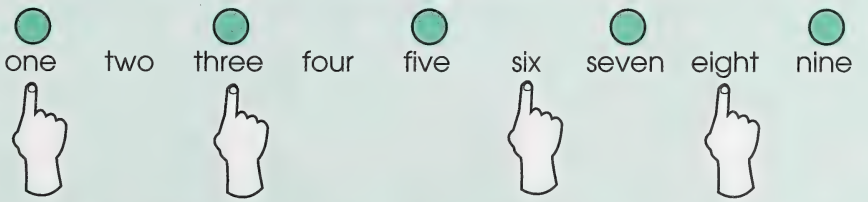
- understanding that the purpose of counting is to determine an **amount**
- counting in order—1, 2, 3, 4, and so on
- connecting the order of numbers with the one-by-one counting (correspondence) of objects. At first, your student might count the same items more than once or not count some items at all. With development, understanding, and practice, the student will become more accurate in one-to-one counting.

To begin with, you may observe that the student demonstrates one or more of the following counting errors.

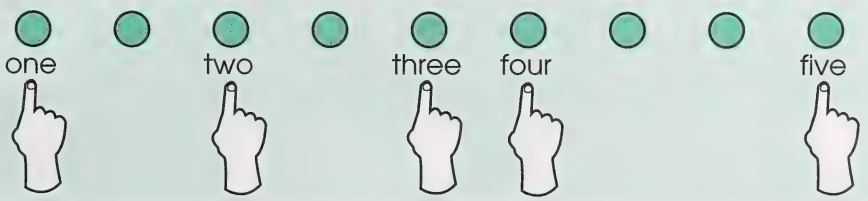
Correct correspondence, incorrect sequence



Correct sequence, incorrect correspondence (counts too fast)



Correct sequence, incorrect correspondence (points randomly)



[1]

[1] Robert E. Reys, *Helping Children Learn Mathematics* (New York: John Wiley & Sons, Inc., 1984), 101. Adapted by permission of John Wiley & Sons, Inc.

Developing the Concept

Several items are needed for this activity—groceries, school supplies, or kitchen supplies. In the following script, substitute the names of school supplies or kitchen supplies if necessary.

Today, we will go on a pretend shopping trip.

I will say what I need. You find the items and put them in the bag.

Find 3 apples, 2 carrots, 1 bottle of ketchup, 2 beans, 3 tomatoes, 1 can of soup.

(or whatever is handy)

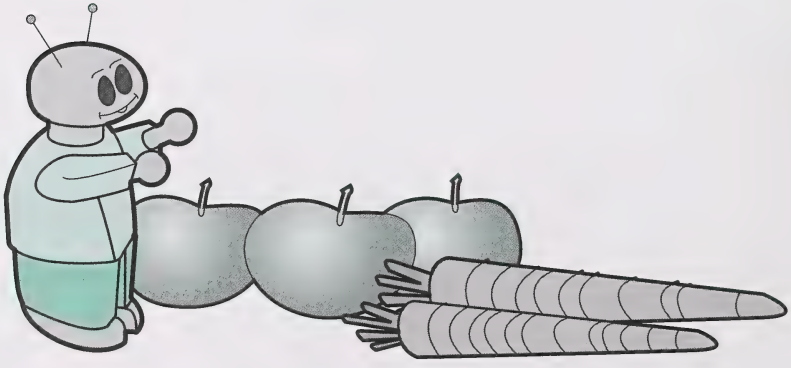
Have the student place the items on the table and count them with you. Use the following script as a guide.

Let's count the **set** of apples together: 1, 2, 3.

Let's count the set of carrots: 1, 2.

Count the set of ketchup bottles: 1.

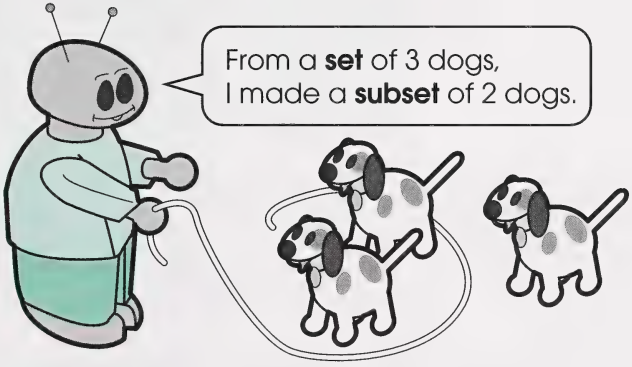
Count the sets of carrots, apples, and ketchup by yourself now.



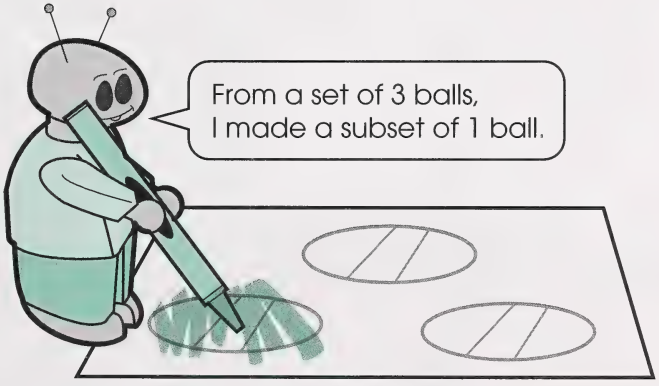
Applying the Concept

Using three different collections of four objects each, take turns making subsets of one to three objects. Circle each subset with a piece of string or yarn, and then identify the number of objects in the original set and in your subset.

Tell the student that a **subset** is a smaller set that is made from a larger set of objects. Continue until you have identified all possible sets and subsets within your collections of objects.



On unlined paper, draw any three similar shapes. Ask the student to colour one and identify the larger set and the subset.



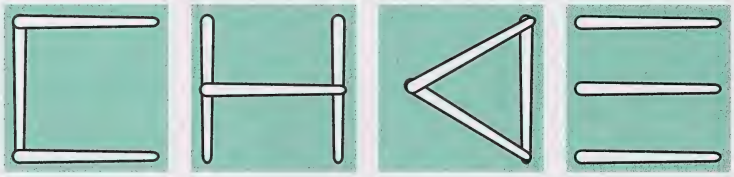
Take turns drawing sets of three shapes and colouring subsets of one or two shapes.

Enrichment (optional)

1. Showing Three in Different Ways

Give the student 12 craft sticks or toothpicks.

Ask the student to glue three sticks at a time onto pieces of cardboard in different ways. Use the examples below to guide the student.



2. Number Challenge

Challenge the student to think of things that come in groups of a number chosen from one to five.

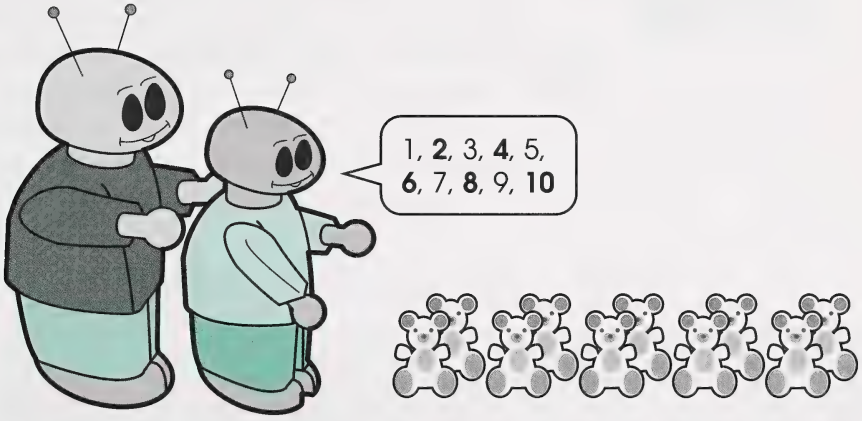
Make charts similar to the ones shown below. You could make your charts with words or pictures. If necessary, you could print the student's ideas.

Two	Three
eyes	stool legs
ears	tricycle tires
legs	

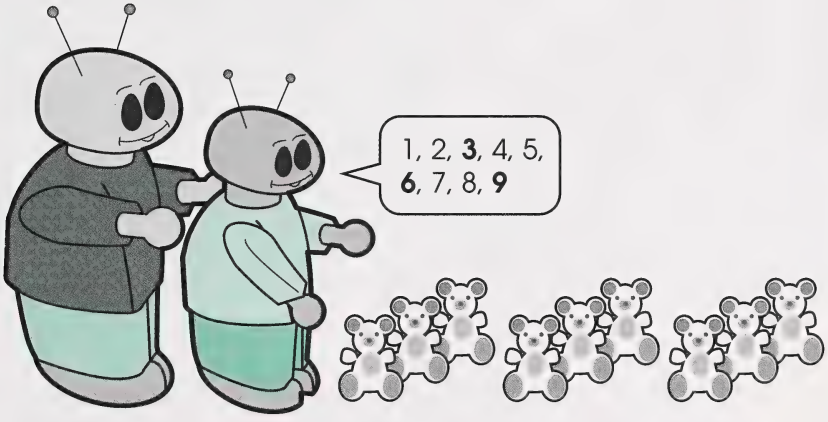
3. Counting by Twos and Threes

Help the student count out a group of ten objects, and then organize the group into sets of two.

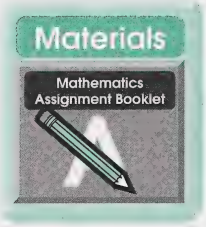
Count the group together by twos, using a soft-**loud** pattern.



Use a similar procedure for counting by threes.



If the student is capable of counting to higher numbers by twos and threes, you could challenge the child to do this.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 7: Assignment 1.

Next, follow the directions to do Day 7: Assignment 2.

Then follow the directions to do Day 7: Assignment 3.

Complete Day 7: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to identify sets and subsets of one to three members.

Day 8

Calendar Time

Time recommended: 10 minutes

Begin with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying sets and subsets of one to four members
- printing the number **4** and the word **four**

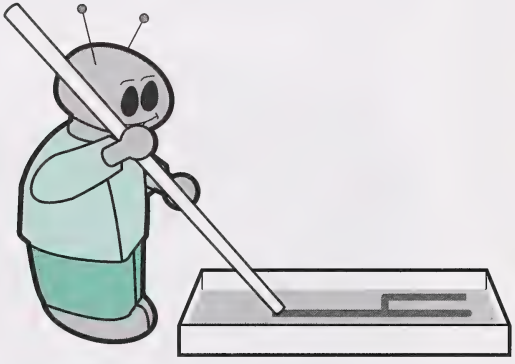
Vocabulary (spoken only)

Two more number words for the student appear on the list below. Other than these, students at this level are not required to read, spell, or write these words.

another	four	other
how many	less	each
more	zero	at least
count	large	as many
		the same

Materials Required

- box containing materials from the master list
- cutouts of animals from Mathematics Assignment Booklet 1A, Day 4: Assignment 2
- My Number Booklet
- timer, for example, a stove timer (optional)
- Number Centre materials—modelling clay, pipe cleaners, and trays of flour or salt (optional)



Developing the Concept

Give the student an unlined sheet of paper, and say the following.

Draw a barn with a large field in front of it.

Allow time to draw. Then place the cutouts of animals in front of the student.

Help me tell a story by using these cutouts.

Put the cutouts on your picture while you listen to the story.

1 white lamb is playing in the field.

Another white lamb comes to play.

How many lambs are in the field? (2)

1 and 1 **more** is **2**. **Count**: 1, 2.

1 more lamb comes to play with the 2 lambs.

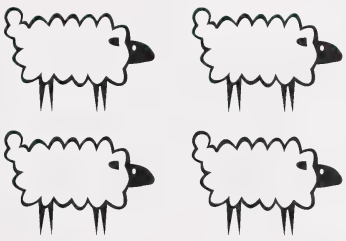
2 and 1 more is **3**. Count: 1, 2, 3.

Another lamb runs into the field.

How many lambs are in the field now? (4)

3 and 1 more is **4**.

Let's count together: 1, 2, 3, **4**.

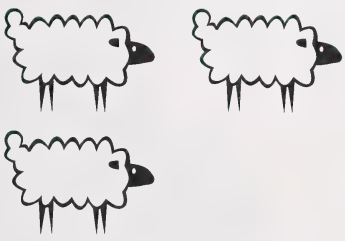


The lambs run and play.

1 lamb gets tired and goes to rest. Take one away.

How many lambs are in the field now? (3)

3 is 1 **less** than 4. 1, 2, 3.



Another lamb gets tired and goes to rest.

Take one away.

How many lambs are in the field now? (2)

2 is 1 less than 3. 1, 2.

Still another lamb goes to rest. Take one away.

How many lambs are left now? (1)

1 is 1 less than 2.

When this last lamb goes to rest, how many are in the field? Take one away.

The answer is **0**.

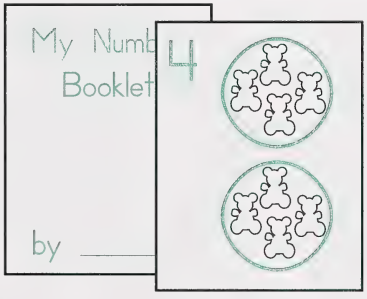
0 is 1 less than 1.

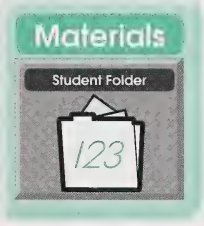
Applying the Concept

On Day 6, the student added the numbers two and three to the number booklet. Today, make a number four page.

Model for the student how to start the number 4 at the top and continue as shown below.

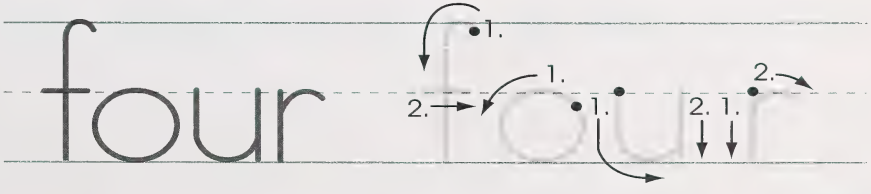
The student may draw or cut out pictures that show sets of four. If glue is used, let it dry. Then have the student circle the sets of four.





Place this number four sheet in the Student Folder. On Day 9, the student will make the number five sheet and prepare the booklet for submission.

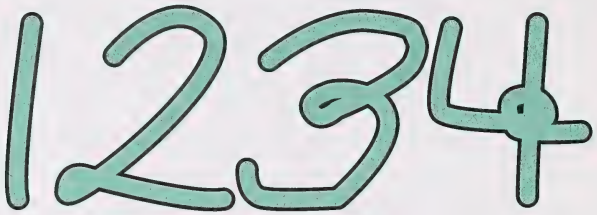
Model for the student how to print the word **four** on lined paper or a chalkboard. Give the student four minutes to practise printing this word. A timer—for example, a stove timer—would be helpful for this activity.

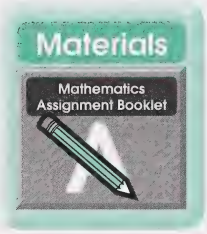


Enrichment (optional)

Number Centre

Have the student practise printing numbers in a tray of flour or salt. Forming numbers from modelling clay or pipe cleaners is also effective.





Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 8: Assignment 1.

Next, follow the directions to do Day 8: Assignment 2.

Then follow the directions to do Day 8: Assignment 3.

Day 9

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying sets and subsets of one to five members
- printing the number **5** and the word **five**
- counting and connecting numbers to five

Vocabulary (spoken only)

five	count	set	straight
more	subset	connect	

Materials Required

- box containing materials from the master list
- small bags
- leaves, rocks, twigs, or other items from nature
- several small toys (optional)
- My Number Booklet
- building blocks (optional)

Most of these materials may be used again in future activities.

Developing the Concept

Weather permitting, take your student on a nature walk. Gather various items that are no longer alive or have never been alive, for example, fallen leaves, twigs, or rocks. Carry your items in small bags.

If you do not go out, collect other counting items such as toy animals, and change the script below.

Ask your student to sort the collected items into their respective groups.

Proceed with the following script.

Place 4 leaves in front of you. Assist if necessary.

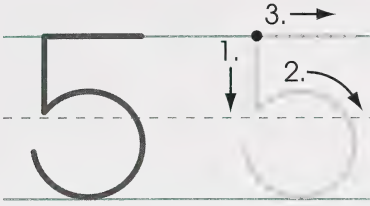
Add 1 **more** leaf to your set of 4 leaves.

4 and 1 more is **5**.

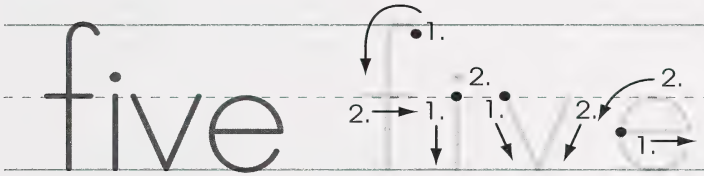
Count the leaves with me: 1, 2, 3, 4, 5.

Count them by yourself now.

Print the number **5** on paper or a chalkboard, and have the student print this number five times.



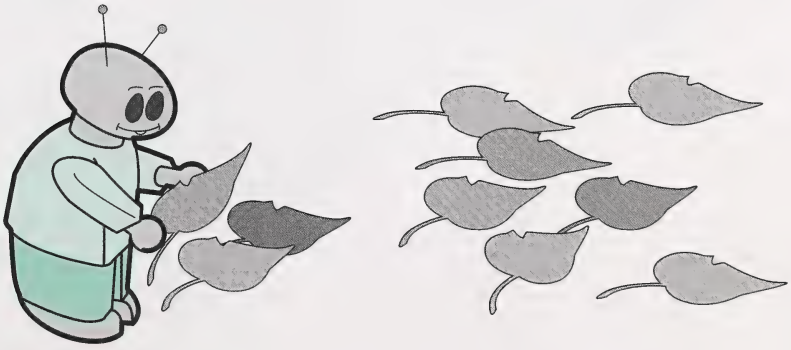
Print the word **five**, and have the student print the word five times.



Place ten leaves in front of the student, and continue the script.

> Make a **subset** of 5 leaves from this larger **set**, and place it beside your first set.
>
> Count the leaves in your subset. (1, 2, 3, 4, 5)
>
> Now make a subset of three leaves. (1, 2, 3)

Repeat several times, using different numbers and items.



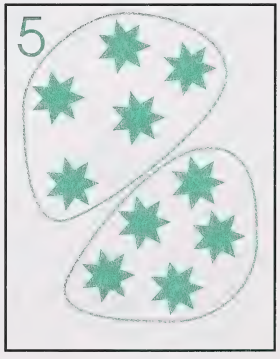
Applying the Concept

On Day 8, the student completed a number four page for the number booklet. Today, the student will finish the booklet by making a number five page.

On a blank page, have the student trace around one hand and print the numbers 1, 2, 3, 4, and 5 on the fingers.

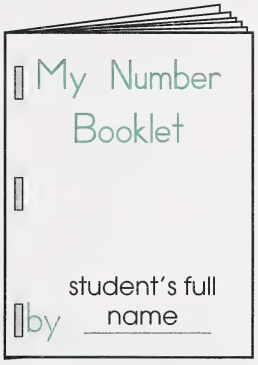
On another blank page, have the student print a number 5 in the top left corner. The student may then draw or cut out pictures that show sets of five members.

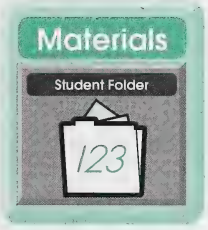
Have your student circle the sets of five. If the pictures have been glued, let them dry first.



On Days 5, 6, and 8, you placed My Number Booklet cover page and page numbers **1**, **2**, **3**, and **4** in the Student Folder. Today, staple all the pages together to complete the booklet.

Ask your student to print the abbreviated form of the module and day numbers, M1D9, on the back of the booklet.





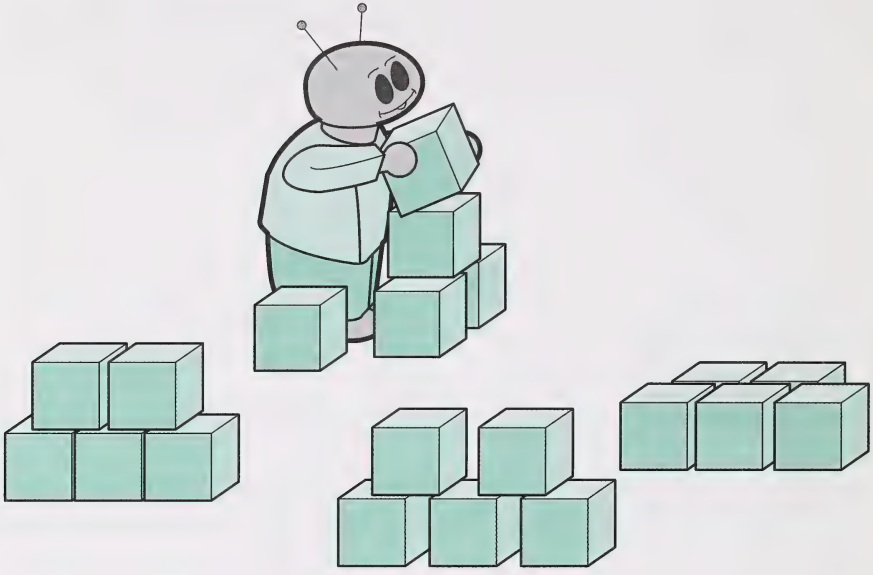
Place My Number Booklet in the Student Folder.

Give the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.

Enrichment (optional)

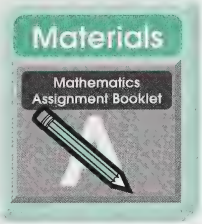
1. Building Block Sets

Have the student use blocks to build different forms for sets of five.



2. Leaf Sets

Help the student collect 10 to 15 leaves from your nature walk. Have the student glue sets of five leaves onto unlined looseleaf paper. Then have the student circle the sets and print the number 5 beside each set. Display these leaf pictures at the child's eye level.



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do Day 9: Assignment 1 and Day 9: Assignment 2.

If your student can do dot-to-dot pictures independently, allow the child to proceed. If more help is needed, guide with the script that follows.

This is a dot-to-dot picture.

Now that you can count to 5, you can finish this picture.

In this picture, point to the number 1.

Point to the numbers 2, 3, 4, and 5.

Use your pencil to **connect** the dots.

To **connect** the dots means to draw a **straight** line from one dot to the next dot.

Start at number 1, and move your pencil to number 2, then 3, then 4, and last 5.

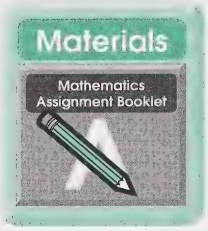
What picture did you make? (a house)

Try the next dot-to-dot picture by yourself.

First, count out loud to 5. (1, 2, 3, 4, 5)

Connect the dots as you did for Assignment 1. Start at number 1.

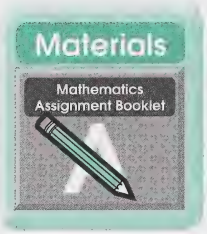
What did you make? (a wagon)



Turn to Mathematics Assignment Booklet 1A, and follow the directions to do both pages of Day 9: Assignment 3.

Next, follow the directions to do Day 9: Assignment 4.

Then complete Day 9: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, did the student enjoy doing the dot-to-dot pictures?



At the end of Mathematics Assignment Booklet 1A, follow the directions to complete Day 9, Student Folder Items. Take the required item from your Student Folder. Submit this item and Assignment Booklet 1A to your student's teacher for marking at the time the teacher has requested them.

Day 10

Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, refer to the Calendar Package for further information. Then proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

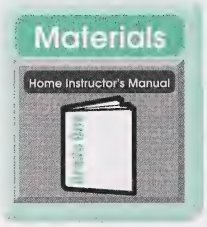
- identifying sets with zero to five members
- printing the number **0** and the word **zero**
- creating number stories using the numbers zero to five

Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten.

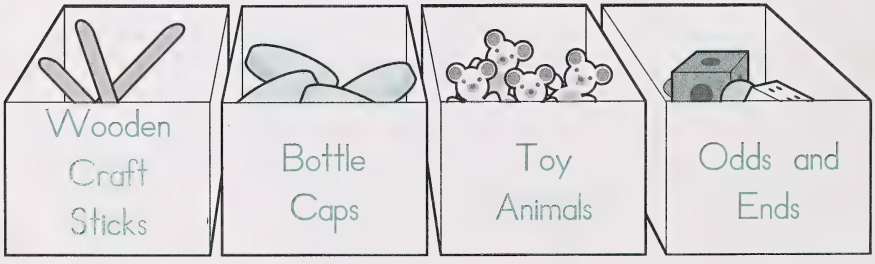
zero	empty	none	oval
remain	variety	subtractive	base line

Materials Required



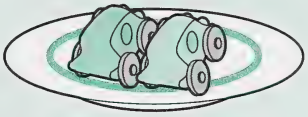
- materials on the Master List of Required Materials (See the Home Instructor's Manual.)
- ten small objects, such as stuffed toys, shells, buttons, or pasta
- number cards zero to five, made from blank index cards
- paper plate or placemat (optional)
- tray of sand, salt, finger paint, or pudding
- ten small edibles, such as raisins, pretzels, or vegetable sticks
- paper napkin or section of paper towel

Keep handy a collection of objects similar to the those shown below.

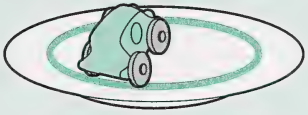


Zero is a number, just like all other numbers. Introduce zero by placing several objects on a paper plate. Remove objects one by one, and ask the student how many objects **remain** each time. Put this into story form.

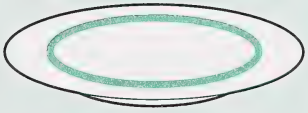
For example, place two toy cars on a plate, and say, "How many cars do you see?"



Remove one car, and say, "One car left the parking lot. How many cars remain?"



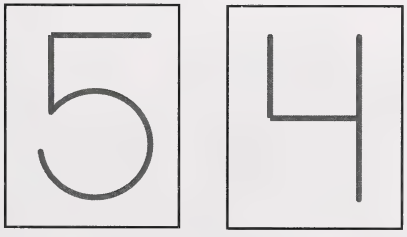
Continue until no cars are left. Ask the student to recall that when there are two things in a set, it is called a set of two, and when there is one thing in a set, it is called a set of one. Then introduce **zero** as the number used to tell how many things are in an **empty** set.



Developing the Concept

Help the student gather a **variety** of small objects as suggested in Materials Required. Place these objects and the zero to five number cards in front of the student. You could also use a plain paper plate or placemat.

Take turns creating stories with numbers to five, similar to the story in the Teaching Tip. For each story, reduce the number of objects in a set to zero. Have the student choose the correct number card to match each number in the story.



Following is a number story in rhyme. Read each verse with your student; then refer to the accompanying illustration.

Five Little Bluebirds

Five little bluebirds
Sitting by the door.
One flew away,
And then there were four.

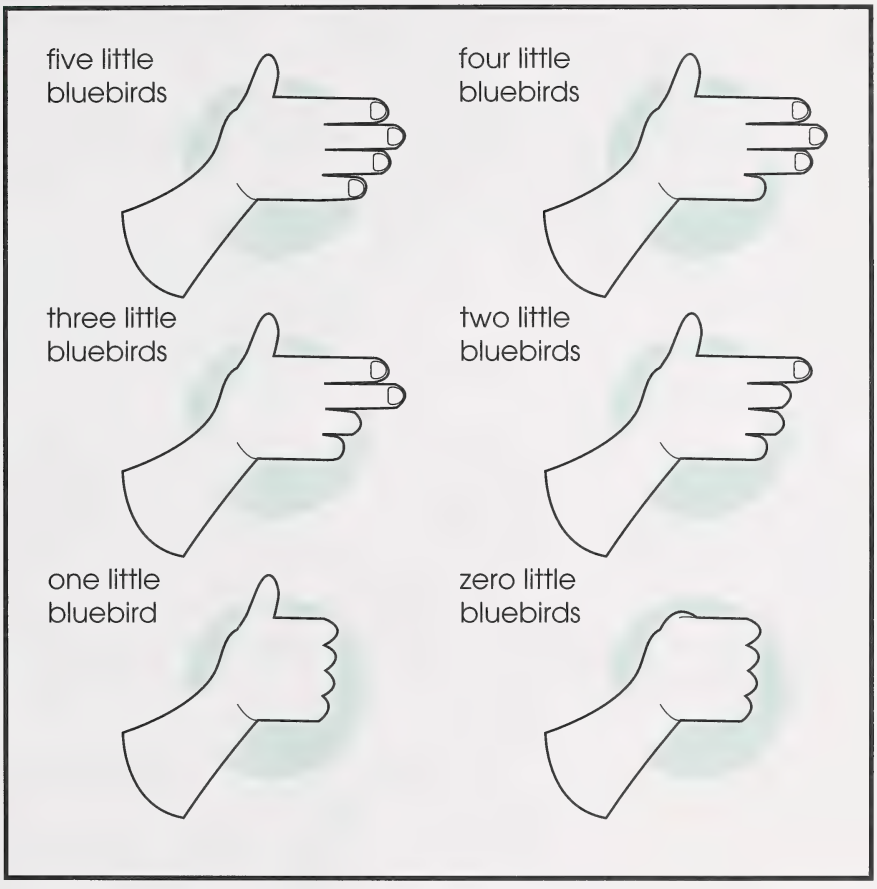
Four little bluebirds
Perched in a tree.
One flew away,
And then there were three.

Three little bluebirds
Wondered what to do.
One flew away,
And then there were two.

Two little bluebirds
Basked in the sun.
One flew away,
And then there was one.

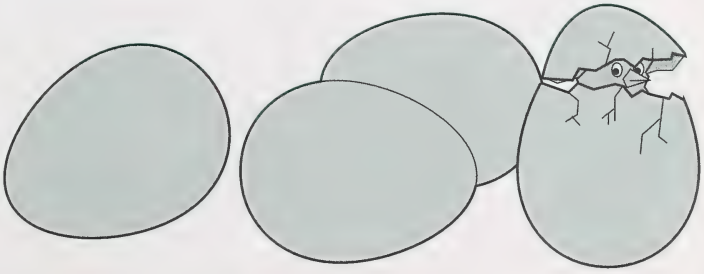
One little bluebird
Thought the day was done.
He flew to his nest,
And then there was **none**.

You could use the fingers of one hand to represent the **subtractive** action of the rhyme.



Discuss how to print the number **0** by saying the following.

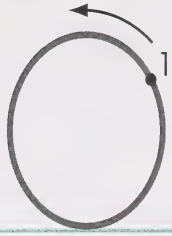
The number 0 is made in the shape of an **oval**. An egg also has the shape of an oval.



Ask the student to point to the card with the number 0.

Have the student form this number in the air and in a tray of sand or other substance that allows feeling how the letter is formed, for example, in salt, finger paint, or pudding.

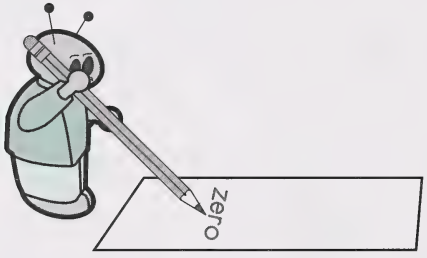
Following is the correct way to form the number 0.



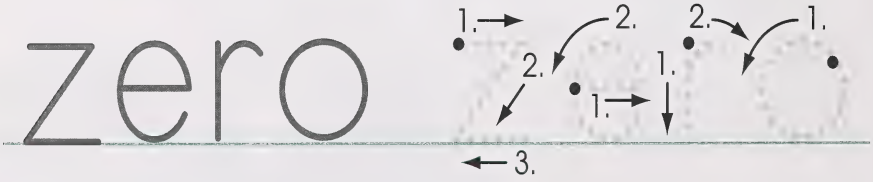
Move from left to right.

When the student is consistently forming the number correctly, assist in drawing a straight line across an unlined sheet of paper. This line will be the **base line** for printing the number 0.

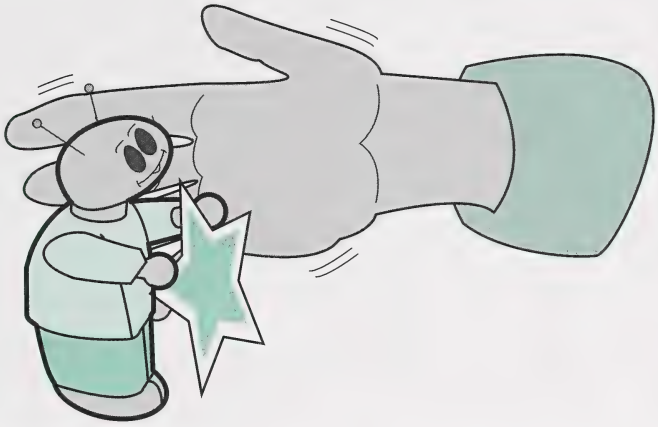
Show your student how to make the number 0 on the base line. Have the student print the number 0 across the whole line. If further practice is needed, help the child make another base line.



Then have the student print the word **zero** across a base line.



Give the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



Materials

Mathematics Assignment Booklet

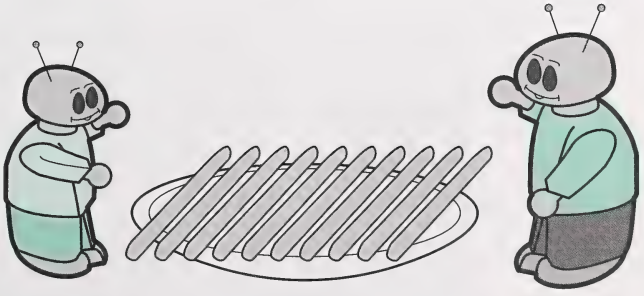
Turn to Mathematics Assignment Booklet 1B, and follow the directions to do Day 10: Assignment 1.

Then follow the directions to do Day 10: Assignment 2.

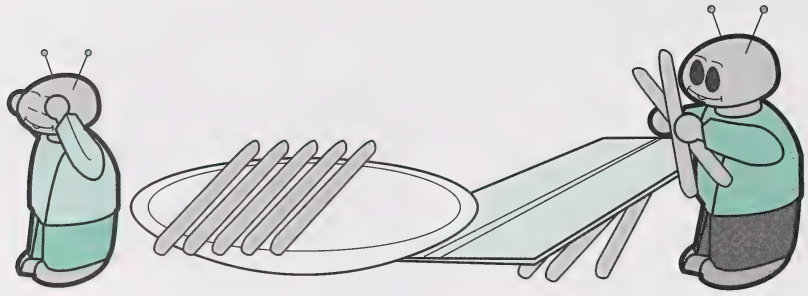
Applying the Concept

How Many Treats?

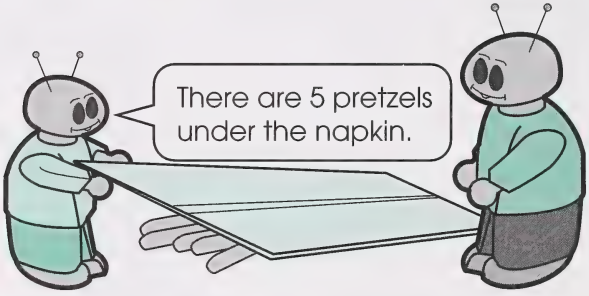
Step 1: Place ten small food items between you and the student. You could use raisins, pretzels, carrots, or celery sticks.



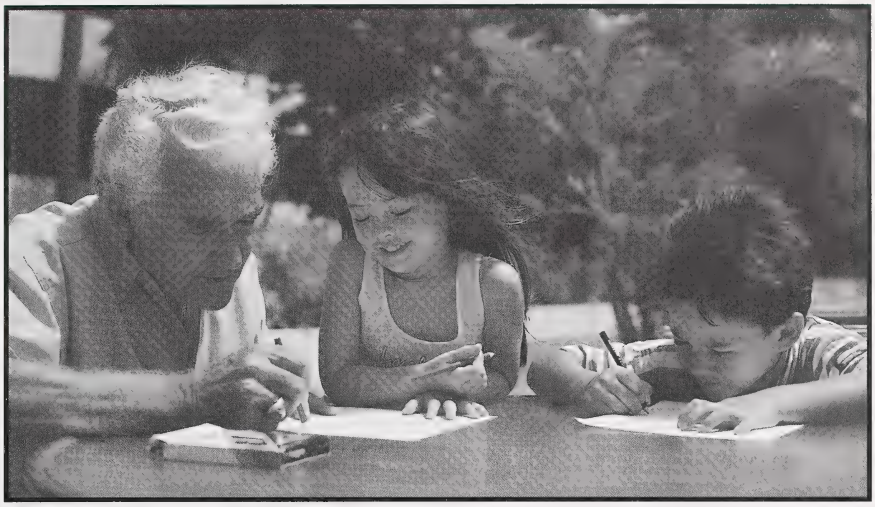
Step 2: While the student's back is turned, you hide from zero to five food treats under a napkin.



Step 3: Ask the student to guess how many treats you have hidden. If the guess is correct, the student may eat the treats. If you have not hidden any items and the student guesses **none** or **zero**, give a special treat.



Step 4: Take turns hiding and guessing until the student has identified sets of zero to five members.



Enrichment (optional)

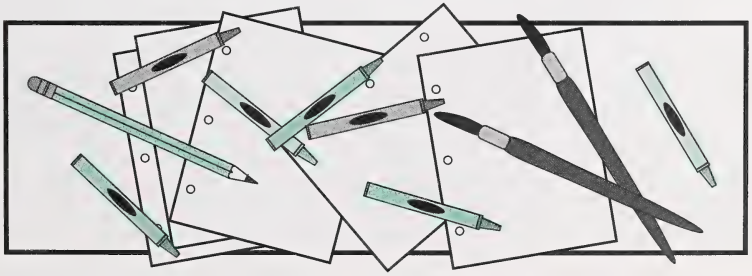
At this point, your student could need extra help or a challenge. If so, postpone the final assignment and Learning Log until after some Enrichment activities.

Note: Use of optional activities may require you to pace the student's progress to accommodate special needs. For example, you could delay the final assignment until a later day. If so, include a review before doing the assignment.

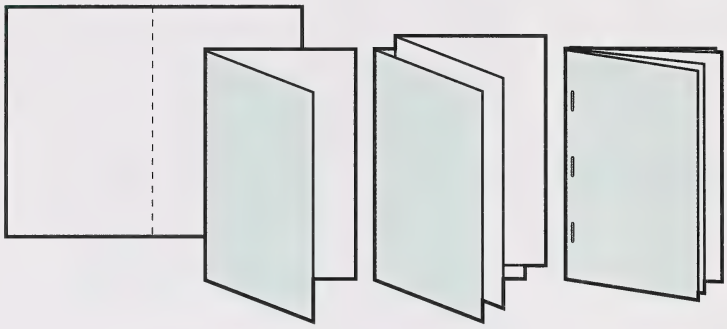
1. My Number Story Booklet

Step 1: Ask the student to choose a story from those created earlier in Developing the Concept.

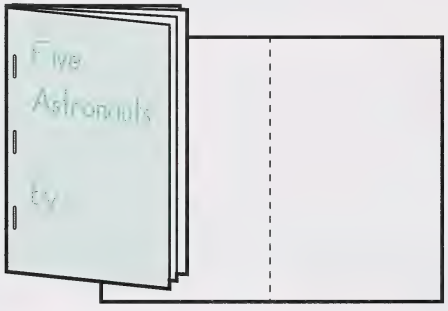
Step 2: Gather unlined loose-leaf paper, pencils, and a variety of colouring tools from your box of materials.



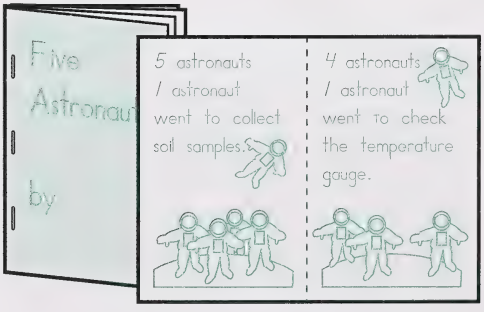
Step 3: Help the student fold two sheets of paper in half and staple on the fold. Guide with the illustrations below.



Step 4: Have the student think of a title. Help print the student's title and name on the cover.



Step 5: On inside pages, help the student illustrate the story and print brief comments.



Step 6: Ask the student to read the story to family and friends.

2. Number and Set Match

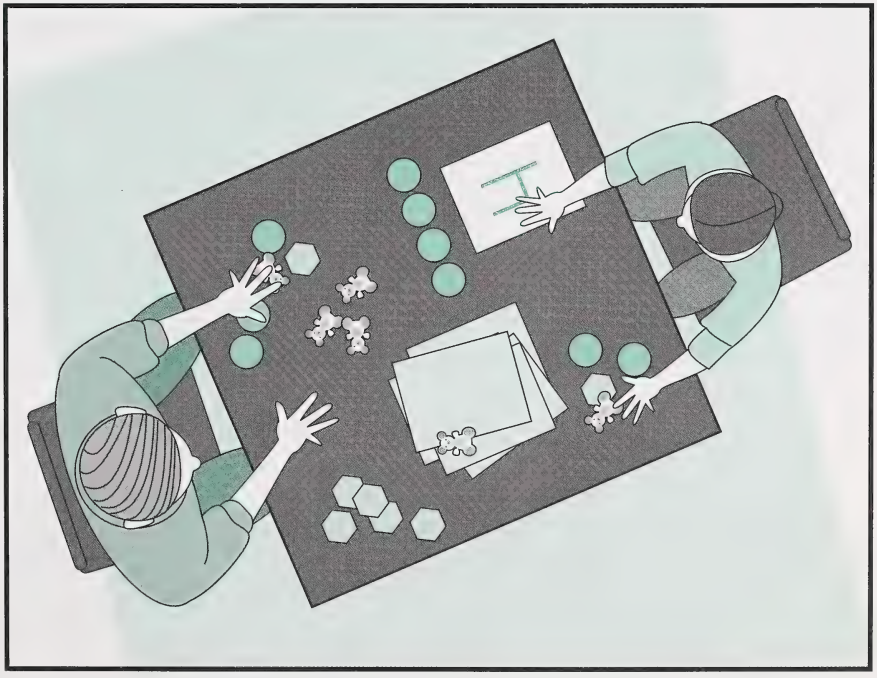
Step 1: Gather ten small objects and the number cards.

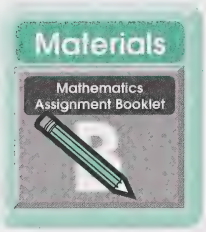
Step 2: Shuffle the cards, and place them face down on a table.

Step 3: Ask the student to pick the top card and say its number.

Step 4: Make a set of objects with the number shown on the student's card.

Step 5: Take turns making number sets with the numbers of members that turn up on the cards.





Turn to Mathematics Assignment Booklet 1B, and follow the directions to do Day 10: Assignment 3.

Then complete Day 10: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, did the child enjoy creating number stories with zero to five members?

Day 11

Calendar Time

Time recommended: 10 minutes

Begin your lesson with calendar activities as usual.

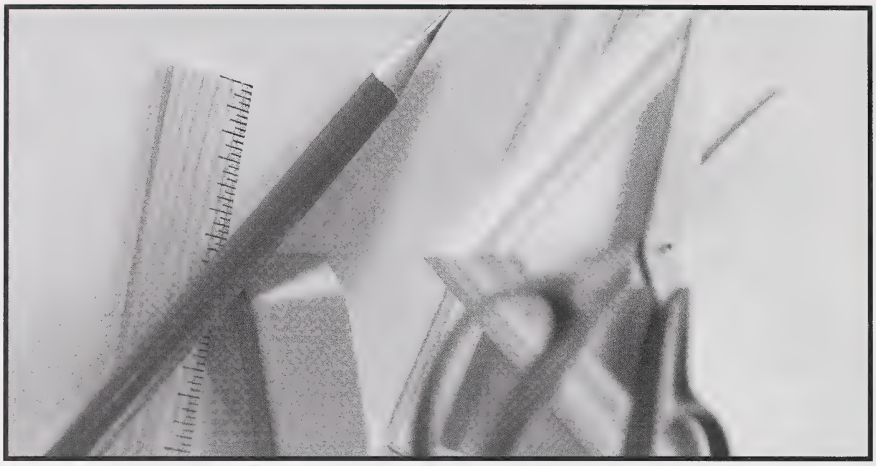
Focus for Today

Time recommended: 45 minutes

- identifying subsets with one to five members

Vocabulary (spoken only)

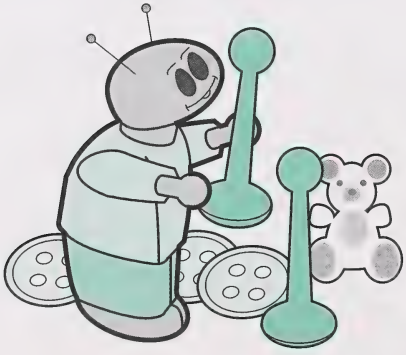
large	subset	counting
set	smaller	count
members	inside	the same
	another	



Materials Required

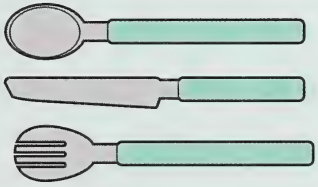
- materials on the master list of required materials
- collection of more than ten small objects—for example, shells, toys, buttons, pasta, coins, keys, stones, or cutouts
- number cards zero to five
- yarn or string approximately 50 centimetres long
- small toy or treat for the child (optional)
- board game, for example, a game that requires the student to move a marker zero to five spaces (optional)

Keep the cards and small objects for use in future days as well.



Keep in mind that throughout the Grade One Mathematics program, you and your student are encouraged to use the term **set** for groups or collections of objects. Each object in a set is a **member** of that set.

A **subset** is a set inside another set.



Developing the Concept

In front of the student, place a collection of small objects, the zero to five number cards, and a length of string or yarn, as described under Materials Required.

Ask the student to choose ten small objects. Help with counting, if needed. Then proceed with the following script. Assist the student as necessary.

You made a **large set** of 10 **members**.

Now, circle a **subset** inside your **large** set.

Remember that **a subset is a smaller set inside another set**.

Use the string to circle 5 items in your large set.

The 5 objects you circled are a subset of your large set of 10.

You have made a subset of 5 members.

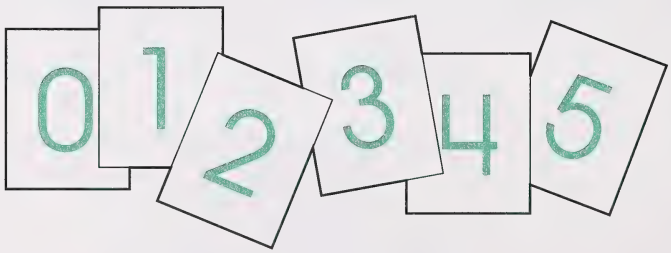
How do you know that your subset has 5 members?

If the student does not suggest **counting** the objects, then say that counting is a way to be sure.

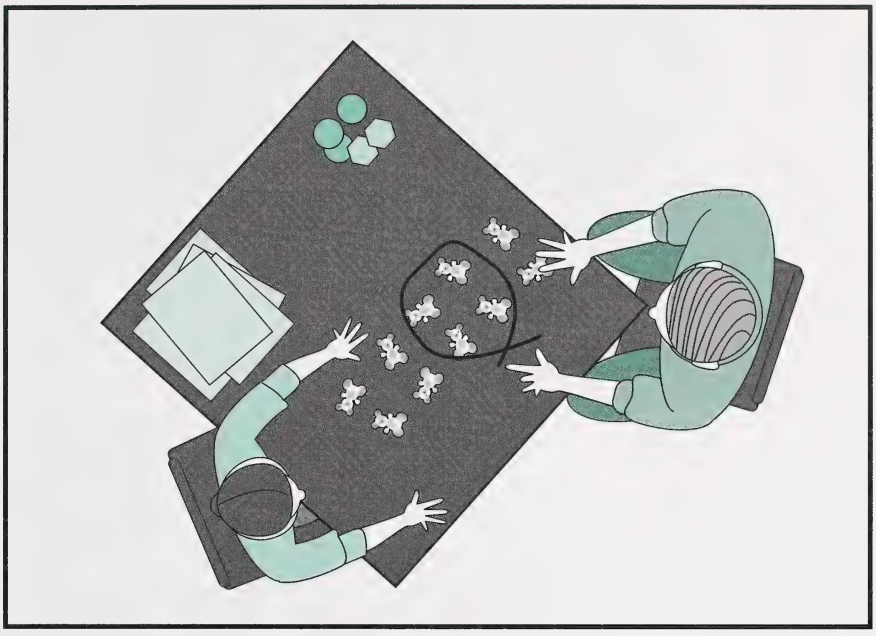
Count the members of this subset to be sure.

Count with me: 1, 2, 3, 4, 5.

Place the number cards face down. Take turns picking cards and circling subsets until the student demonstrates a clear understanding or shows signs of fatigue.



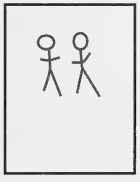
If your student continues to experience difficulty, revisit the topic of subsets at a later date.



Applying the Concept

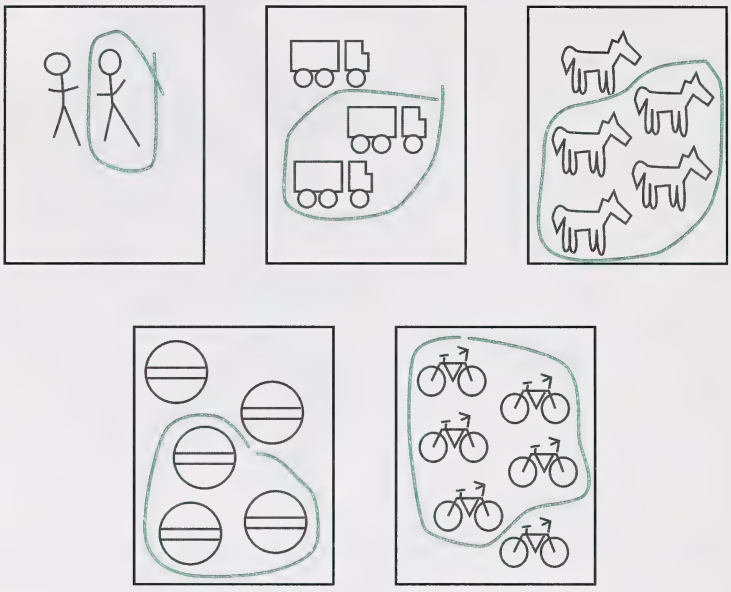
My Sets and Subsets Booklet

Step 1: Ask the student to draw or glue a cutout picture onto an unlined loose-leaf paper. The picture should show a set of two members.

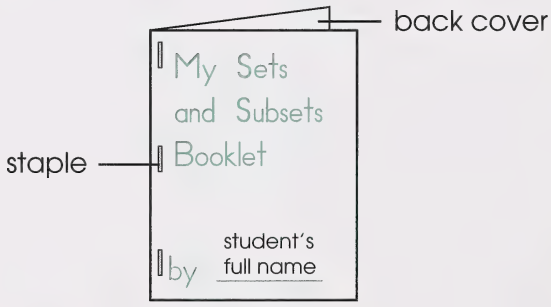


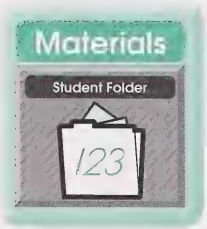
Step 2: Have the student glue a piece of yarn around a subset of the larger set.

Step 3: Have the student also make subsets with two, three, four, and five members.



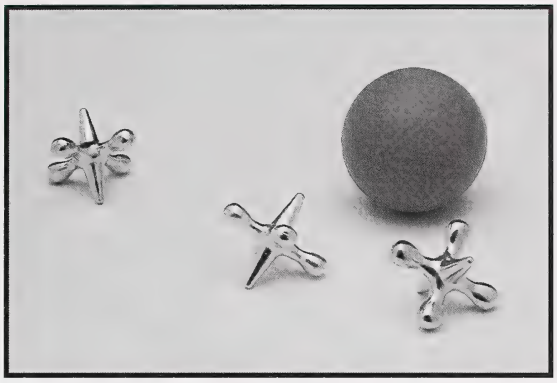
Step 4: Make front and back covers. Staple all pages together.





Step 5: Have the student print the abbreviated form of the module and day numbers, M1D11, on the back of the booklet.

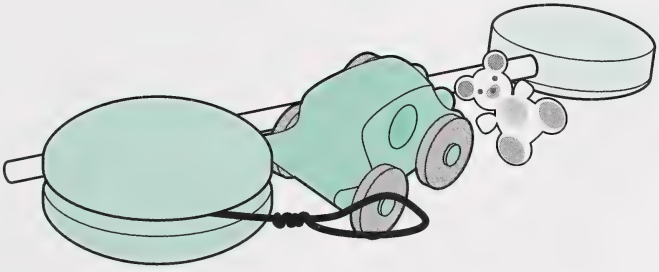
Encourage the student to tell family and friends about the sets and subsets in the booklet. Then place it in the Student Folder.



Enrichment (optional)

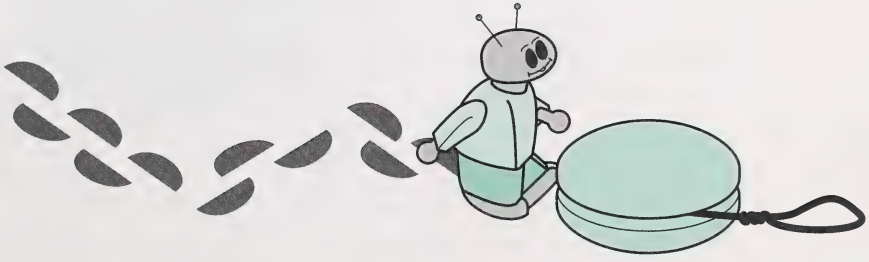
1. Treasure Walk

Step 1: Select something in the room that your student would like to find, for example, a toy or a treat.



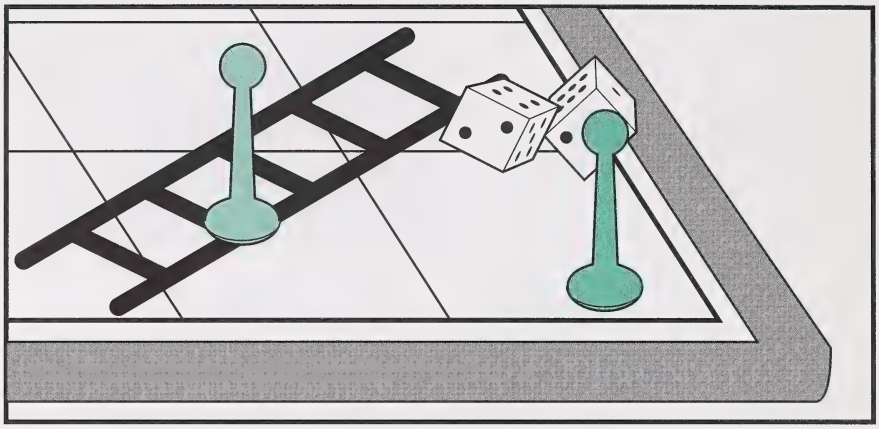
Step 2: Give your student directions similar to the following:

- walk three steps to the left
- walk five steps forward
- walk four steps to the right
- look for something blue



2. Board Game

Play a board game such as *Snakes and Ladders*.



Materials

Mathematics Assignment Booklet

Turn to Mathematics Assignment Booklet 1B, and follow the directions to do the assignment for Day 11.

Then complete Day 11: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy to identify subsets of zero to five members? Why or why not?

Day 12

Calendar Time

Time recommended: 10 minutes

Begin your lesson with the daily calendar activities as usual.

Focus for Today

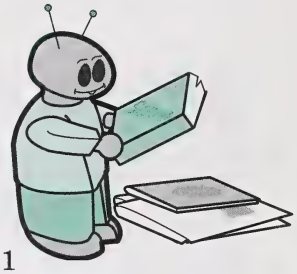
Time recommended: 45 minutes

- identifying sets with more or fewer members
- problem solving: ordering events that involve before and after

Vocabulary (spoken only)

fewer	equivalent	after
less	the same	equal
more	backwards	
greater	before	

Materials Required



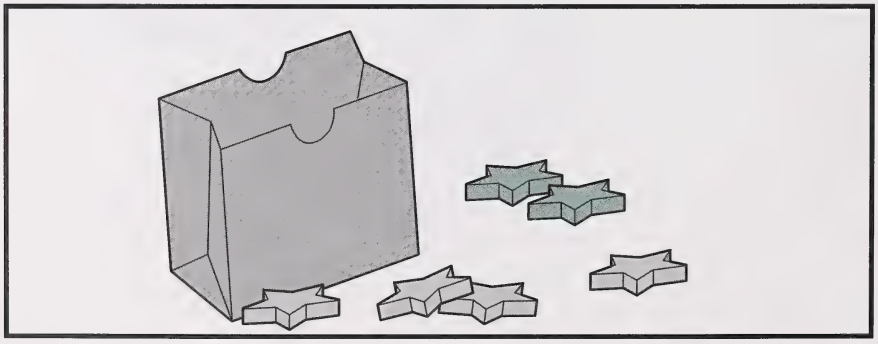
- materials on the master list
- red and blue objects (Other colours may be substituted.)
- paper or plastic bag (The student must not be able to see through the bag.)
- string and the number cards from Day 11
- old catalogues, newspapers, flyers, and magazines
- cartoon strips from a newspaper (optional)

One-to-one correspondence requires the student to compare quantities using the terms **fewer**, **less**, **more**, **greater**, and **equivalent**, or **the same**. The student must be able to match one object to another before being able to determine if one number is less or more than another.

Developing the Concept

Place two red and four blue objects in an opaque bag.

Have the student pull out all six objects and place the blue objects in one set and the red ones in another.



Ask the following questions.

Which set has **fewer** objects? (red)

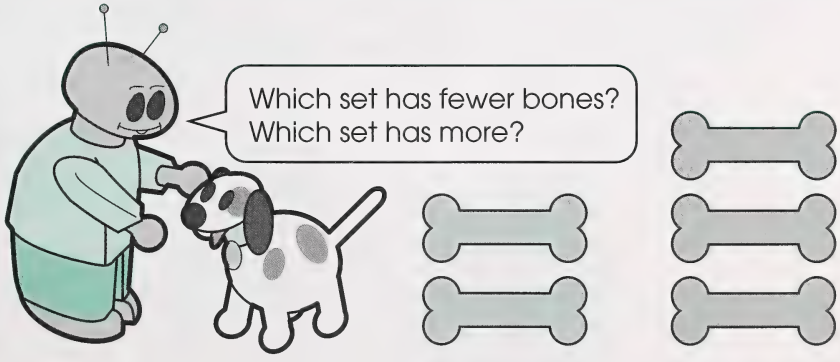
Which set has **more** objects? (blue)

When the student has distinguished which set has fewer and which has more, ask the student to use a piece of string to circle the set with fewer members.

Place the correct number card beside the set with fewer members and the correct number card beside the set with more members.

Repeat this activity several times, placing a different combination of coloured objects in the bag each time.

Although it is important for the student to understand each math concept, it is best to change activities before the student becomes tired or frustrated. If you sense that it is time to move on before the student has fully grasped a particular idea, return to the activity at another time.



In the following activity, focus on how your student compares the sets, so that you can comment on your observations later in Day 12: Learning Log.

Does the student

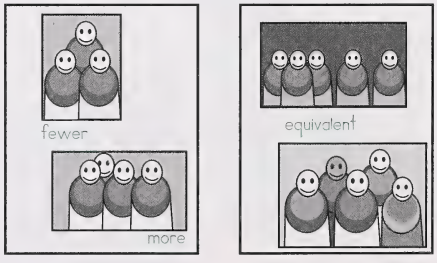
- use one-to-one correspondence to compare the members of the sets?
- count the number in each set?
- correctly use the terms **more**, **greater**, **fewer**, **less**, and **equivalent**, or **the same**?
- understand that each situation that involves **more** also involves **fewer**?

Applying the Concept

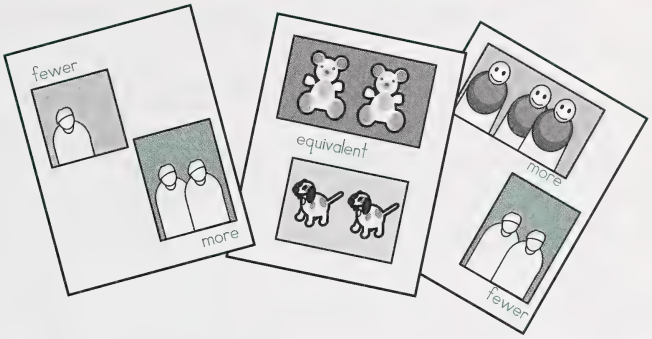
My Fewer, More, and Equivalent Booklet

Step 1: From catalogues, newspapers, flyers, or magazines, have the student cut out approximately ten pictures of sets of people or items.

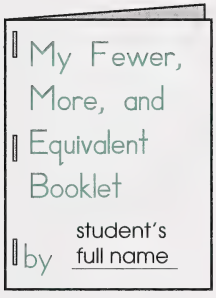
Step 2: Ask the student to choose any two pictures to glue on an unlined paper. Label the picture sets **equivalent** or **fewer** and **more**. Assist as necessary.



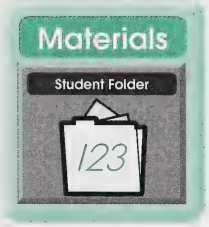
Step 3: Continue until the student has made five sheets showing equivalent or fewer and more pairs.



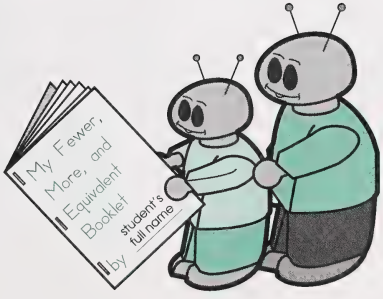
Step 4: Make front and back cover pages. Staple all the pages together.



Step 5: Have the student print the abbreviated form of the module and day numbers, M1D12, on the back of the booklet.



Encourage the student to tell family and friends about the fewer, more, and equivalent sets in the booklet. Then place it in the Student Folder.



Apply the second focus for the day with the following story.

Here is a silly story.

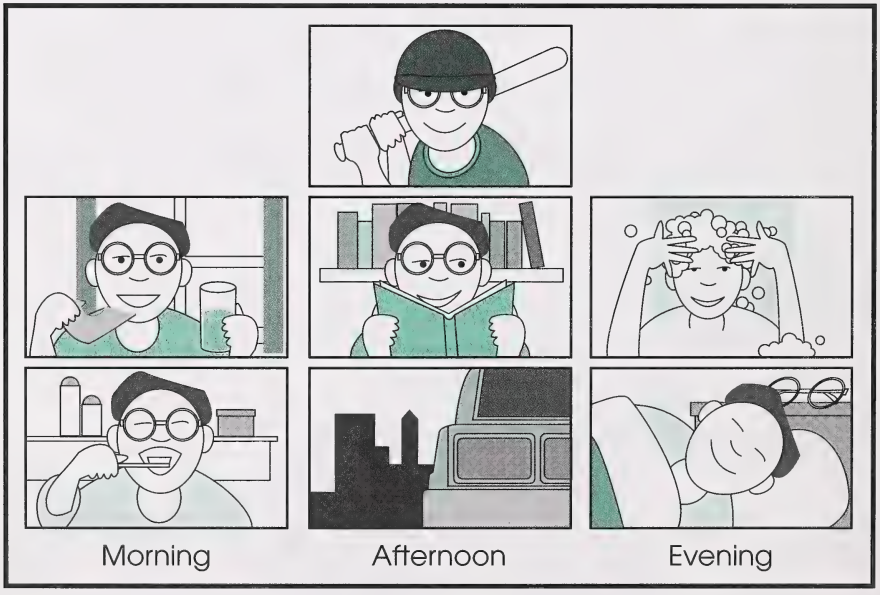
There once was a little girl who went to the zoo, ate breakfast, and then got out of bed.

What is wrong with this story?

Is this story **backwards**?

Discuss the idea of orderly routines, using the words **before** and **after**. For example, ask what the student does before and after mathematics time. Apply these words to personal routines that occur in the morning, afternoon, and evening.

Have the student set up a chart similar to the one below. Pictures could be drawn or cut from magazines.



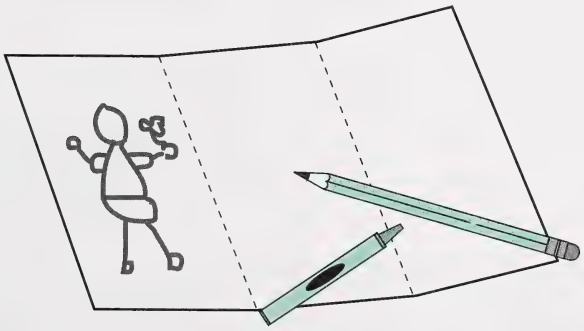
Enrichment (optional)

1. My Special Day

Step 1: Fold unlined paper into three **equal** sections.

Step 2: Ask the student to choose a special occasion.

Step 3: Have the student draw and colour an orderly sequence of three pictures to show what was done on this special day.

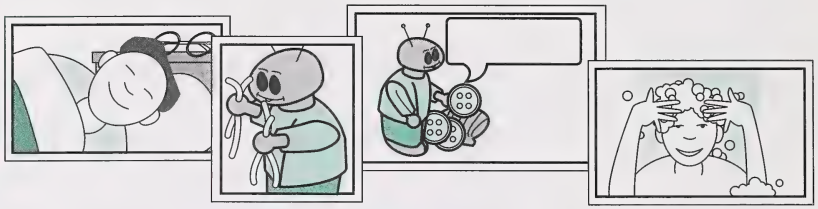


Step 4: On the back of the paper, help the student print a brief description of the events pictured.

2. Cartoon Stories

Step 1: Cut apart the cartoon boxes from the comics section of a newspaper.

Step 2: Have the student fit the pictures together to create a story.

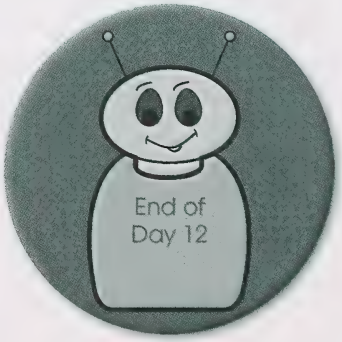


Step 3: Ask the student to tell a story to match the cartoons.

Materials

Mathematics Assignment Booklet

Complete Day 12: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy to order events? Why or why not?



Day 13

Calendar Time

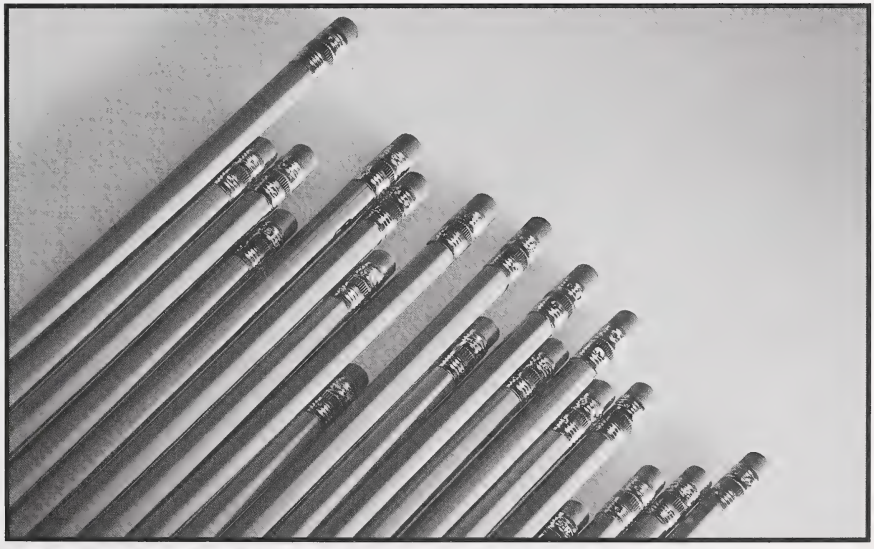
Time recommended: 10 minutes

Begin your lesson with the daily calendar activities as usual.

Focus for Today

Time recommended: 45 minutes

- introducing measurement
- identifying objects of the same length
- identifying objects that are shorter and longer



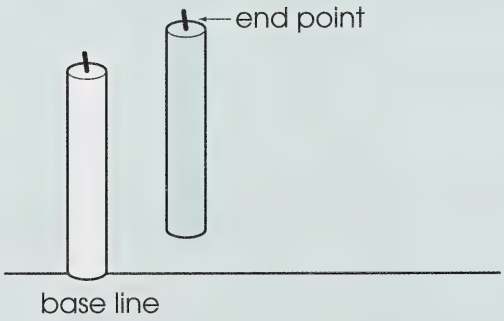
Vocabulary (spoken only)

length	long/longer/longest
end point	big/bigger/biggest
base line	short/shorter/shortest
tracking	small/smaller/smallest
tall	

Materials Required

- materials on the master list (**Note:** Be sure to have masking tape today.)
- four different lengths of string
- collection of long, thin items, such as straws, spaghetti, licorice, pencils, or crayons

When two objects are positioned as the ones below, a child will often choose the dark one as the taller object, even though both are the same **length**. If this happens, the child is defining length in terms of positions of the **end points**.



When the student makes linear comparisons of this type, encourage comparison from a common **base line**, or starting point.

Developing the Concept

Begin by reading the following nursery rhyme, "Jack Be Nimble."

Read the rhyme three times with the student.

When you are reading with your student, **tracking** the words is effective to help the child follow along. Tracking is the process of moving your hand or finger smoothly below the words as you read them aloud.

Jack Be Nimble

Jack be nimble,

Jack be quick.

Jack jump over

the candlestick.

Point out the picture above, which is the same as the picture below the rhyme, and say the following.

Who is the character in the picture? (Jack)

What is Jack doing? (jumping)

How **tall** do you think Jack is?

Is Jack as tall as you? (no)

How do you know that Jack is not as tall as you? (Any reasonable answer is acceptable)

How many candles are in the picture? (2)

Which candle is **longer**? (The candle on its side is longer.)

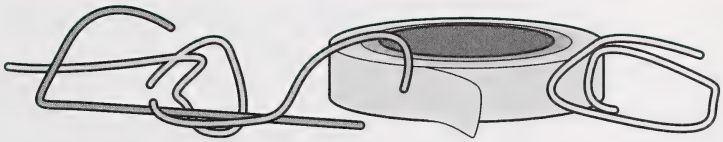
The words **how long** mean how **big** from one end to the other.

Which candle is **shorter**? (The lighted candle is shorter.)

The words **how short** mean how **small** from one end to the other.

Who is shorter, you or I?

How do you know? (Any reasonable answer is acceptable.)



Give the student the four differing lengths of string. Continue the script.

> Here are 4 pieces of string.
>
> Are they the same size?
>
> Which one is the **longest**?
>
> To find the longest string means to find the **biggest** string from 1 end to the other.

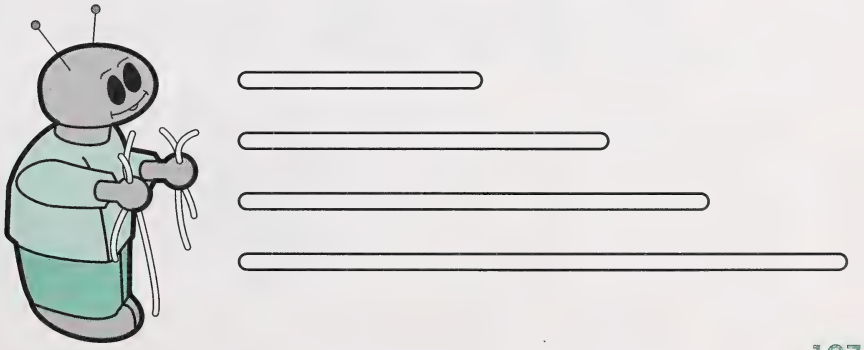
Challenge the student to prove that the selected string is the longest. The child can check by making a masking tape base line and measuring the strings from this common point.

> What happens when the base line for each string is different?

Encourage the student to experiment.

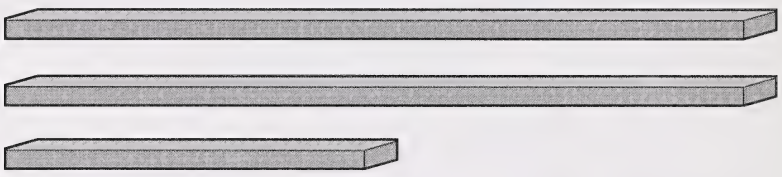
When the student has a clear understanding of how to determine the longest string, ask which is the **shortest** or **smallest** string. Repeat the procedure that was used to find the longest one.

Ask the student to place the strings in order from shortest to longest. Help if necessary.



Applying the Concept

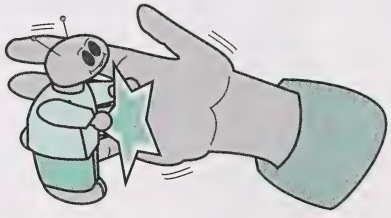
From your collection of long, thin items, place three items in front of the student. Two items should be the same length, and one should be noticeably shorter.



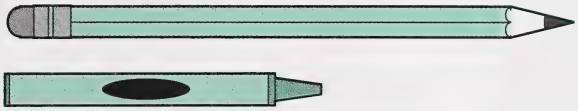
Ask the student to tell which one is different. Encourage vocabulary such as **shorter**, **smaller**, **longer**, and **bigger**.

Repeat this activity several times with other objects that differ obviously in length but are otherwise the same.

Give the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



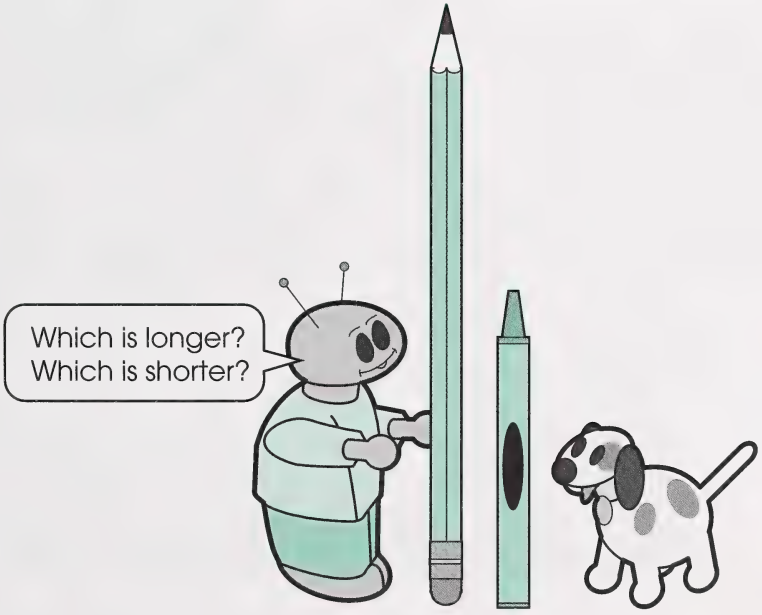
Hold up a long pencil and a short crayon.



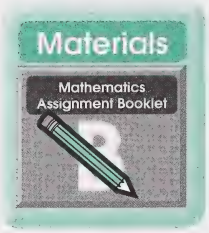
Ask the student how these two items are different. Expect answers about the colour, type of object, paper wrapper, and eraser. If the student does not say that the crayon is shorter or the pencil is longer, ask the following questions.

Which is **longer**, the pencil or the crayon? (pencil)

Which is **shorter**, the pencil or the crayon? (crayon)

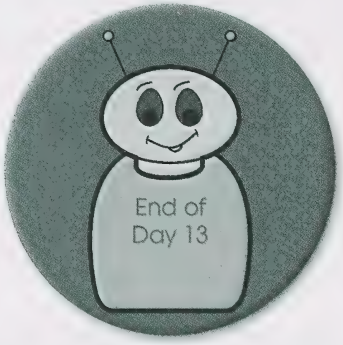


Repeat this activity several times with other objects that differ in more than one way.



Turn to Mathematics Assignment Booklet 1B, and follow the directions to do all three pages of the assignment for Day 13.

Then complete Day 13: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about being able to compare the size of one object with that of another.



Day 14

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying the longer object
- identifying the shorter object
- identifying objects that are **about** the same length

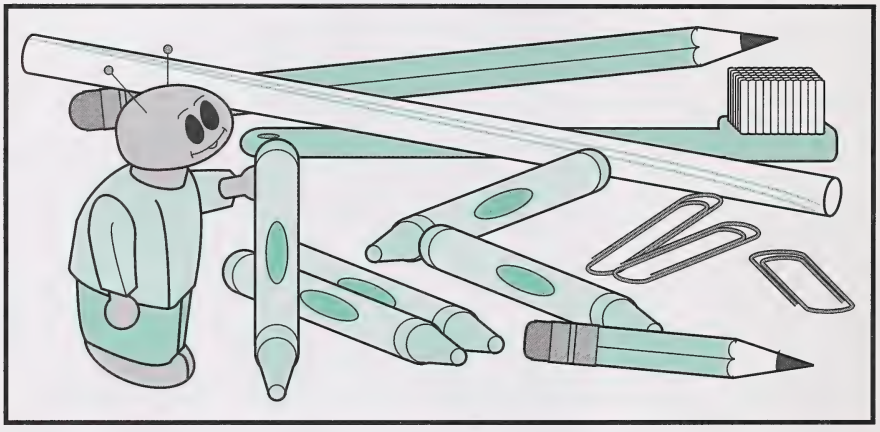
Vocabulary (spoken only)

about
in front
compare
the same
different
reference
sort

Materials Required

- materials on the master list
- approximately ten small objects of various lengths, such as paper clip, safety pin, crayon, bolt, pencil, and comb
- two paper towel rolls (optional)
- small objects that were collected on Day 10 (optional)
- three containers for the objects (optional)

Continue to keep the materials for future activities.



When the student compares two objects to determine the longer or shorter one, be sure the objects begin at the same base line. This allows the student to focus on one characteristic—the other end—to make the comparison.

Developing the Concept

1. Which Foot Is Longer?

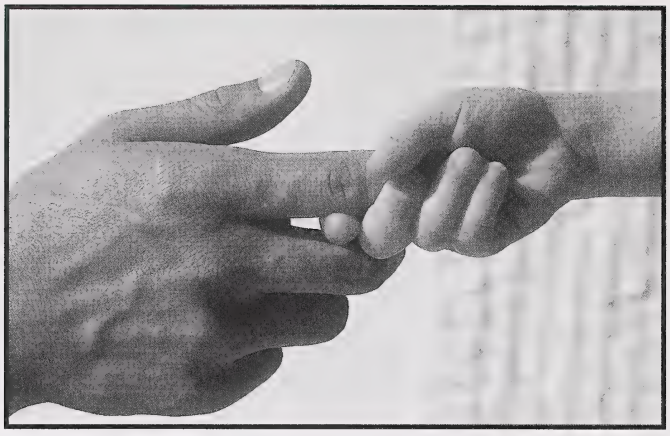
Help trace the outlines of the student's foot and your foot on two sheets of paper. Cut out the shapes. Place them side by side on a common base line. Question as follows.

Which foot is **longer**?

Is it your foot or my foot?

Have your student answer in a complete sentence.
"Your foot is longer than my foot."

Have the student trace other feet to **compare**. Experiment to see what happens when a common base line is not used.



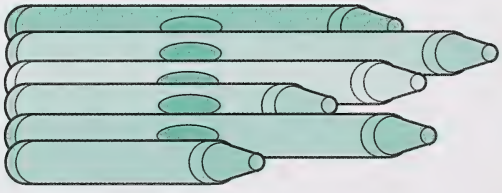
2. Which Hand Is Longer?

Follow a similar procedure to that used for the feet.

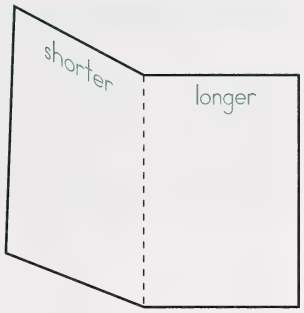
Note: When making hand size comparisons, trace with the fingers together and measure from the wrist to the tip of the middle finger.

3. Colour Chart

Gather six to eight crayons of various lengths. Place them in front of the student.



Fold a sheet of paper in half, and ask the student to print the word **shorter** at the top of one half of the paper and the word **longer** at the top of the other half, as in the illustration that follows.



Begin with the following comments.

Look at the crayons **in front** of you.

Pick up two crayons and **compare** them.

The word **compare** means to see if 2 things are **the same** or **different**.

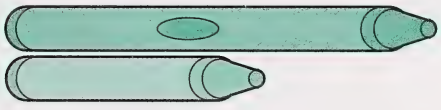
Which crayon is longer?

Under the word **longer**, print the colour name of the longer crayon.

Which crayon is shorter?

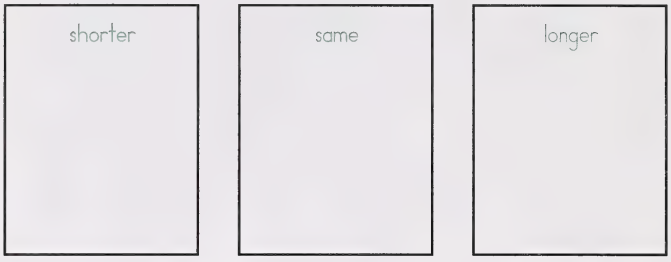
Under the word **shorter**, print the colour name of the shorter crayon.

Help the student print the words, if necessary. Continue until all the crayon colours have been recorded. Display the chart at the student's eye level.

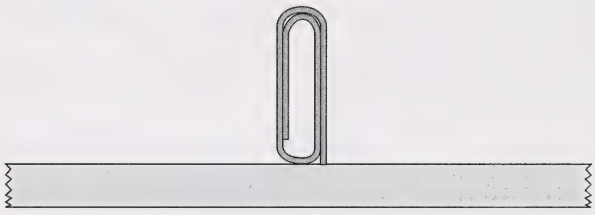


Applying the Concept

Collect ten small objects, some of about the same length. Label three sheets of construction paper **shorter**, **same**, and **longer**.

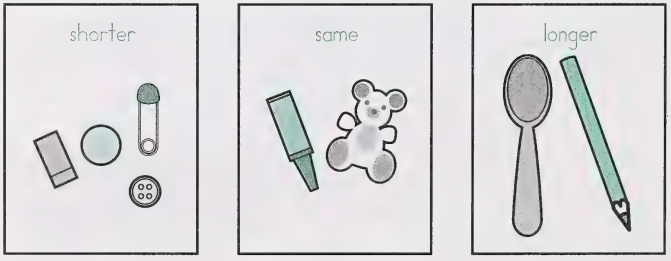


Press a strip of masking tape onto the table for your student to use as a base line. Ask the student to choose one small object and place it on the base line as a **reference**.



base line

Have the student compare the other objects with the reference object and then place each one on the appropriate piece of labelled construction paper.

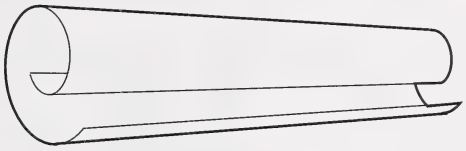


If the objects are light enough, tape them onto the construction paper and display the three sheets at the student's eye level.

Enrichment (optional)

1. I Spy Game

Step 1: Find two paper towel rolls or roll up two sheets of paper that you and the student can use for spyglasses.



Step 2: Place an object in front of the student; for example, use an eraser or pencil.

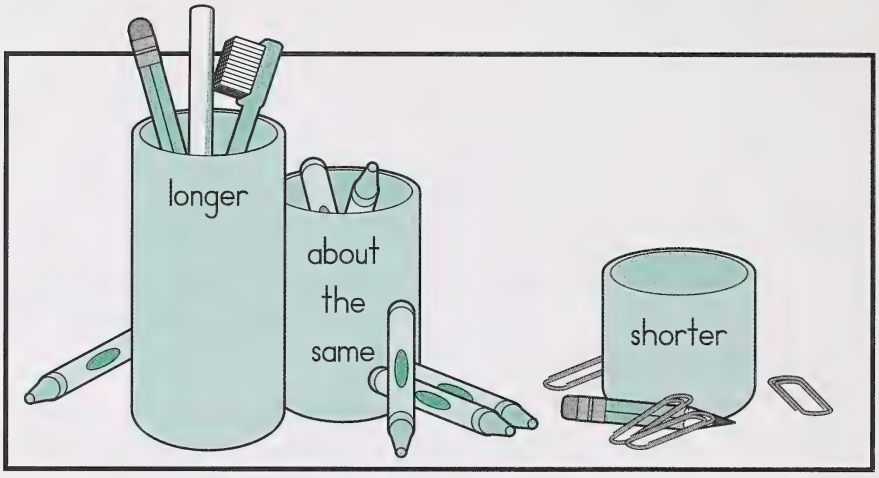
Step 3: Ask the student to use the spyglass to look around the room for items that are shorter or longer than the object you chose.

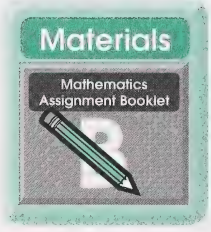
Step 4: When a longer or shorter object is seen, the student can say, for example, "I spy something that is longer than an eraser. We use it to eat soup." (a spoon)

2. Sort the Objects

Step 1: Have the student choose at least ten items from those collected on Day 10.

Step 2: Ask the student to **sort** the items into containers labelled **longer**, **about the same**, and **shorter**.





Complete Day 14: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about being able to identify longer and shorter objects.

Day 15

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

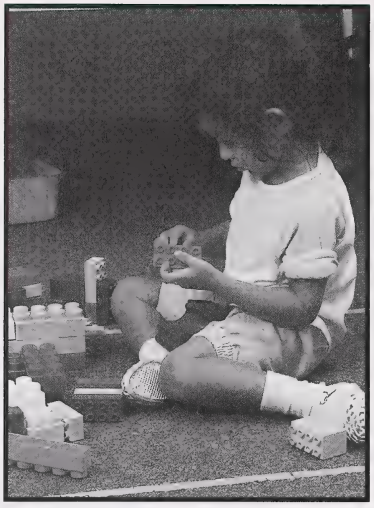
Focus for Today

Time recommended: 45 minutes

- identifying the shorter or taller object
- ordering objects by height

Vocabulary (spoken only)

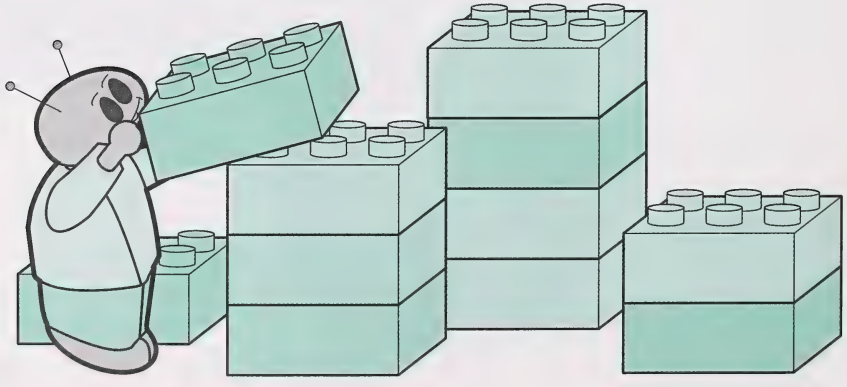
height	up
tall/taller/tallest	base line
short/shorter/shortest	length



Materials Required

- materials on the master list
- chair
- wide mirror (optional)
- different kinds of building blocks
- collection of items of various sizes, such as toys, books, and dolls (optional)

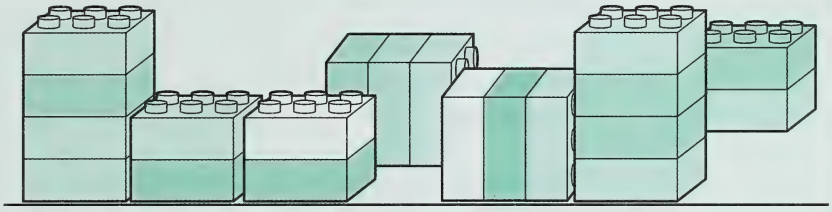
Remember to keep materials for future activities.



Observe how your student compares **height**.

Does the child

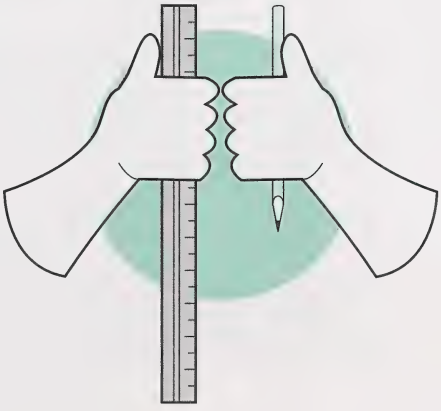
- place the objects side by side?
- line up the objects from a common starting point (base line) and from a common position?



- understand the concept that one object might be **taller** than another object but **shorter** than something else?
- use accurate comparative language, for example, use of the terms **tallest** and **shortest**?

Developing the Concept

Choose two objects of different lengths, such as a ruler and a pencil. Hold the two objects in front of you at exactly the same height, and begin with the following comments.



Today, you are going to learn about **height**.

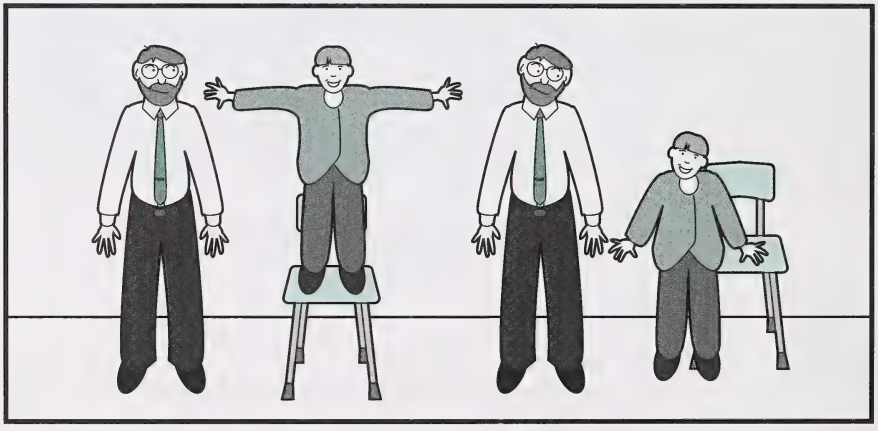
Height means how far **up** something goes.

Are the ruler and pencil **the same** height? (no)

Why are these two objects not the same height? They are both at the same height in front of me.

If the student finds it difficult to explain why the ruler and the pencil are not the same, show how to compare objects using the same base line and two different base lines.

Reinforce your student's understanding of the need for a common base line by having the child stand on a chair.



Ask the following questions.

Who is **taller**, you or I? (Student will probably answer, "I am taller.")

Are you really taller than I am? (no)

To measure our heights correctly, we must both be standing on the same **base line**.

My base line is the floor, and your base line is the chair.

Come down from the chair, and stand beside me. Now your base line is the floor, too.

If possible, stand in front of a wide mirror to ask the following questions.

Who is **taller**, you or I? (Student should answer, "You are taller".)

Who is **shorter**, you or I?

What is your base line now? (the floor)

What is my base line? (the floor)

When we compare the length or height of 2 objects, they must be on the same base line.

The word **length** means how **long** an object is.

The word **height** means how **tall** an object is.

Applying the Concept

Ask the student to use different kinds of building blocks to make towers of various heights.

Encourage the student to compare the heights of the towers and to use the terms **height**, **taller**, and **shorter**. Then have the student order the towers from shortest to tallest.

You could have a competition to see who can make the tallest tower.

Enrichment (optional)

1. Building Towers

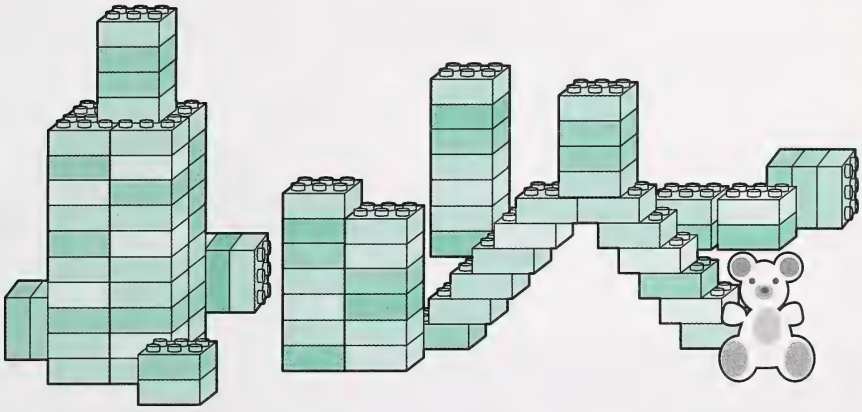
Step 1: Place some building blocks in front of you and your student.

Step 2: You build a tower with some of the blocks.

Step 3: Ask your student to build a tower that is taller or shorter than yours.

Step 4: Take turns building towers that are taller or shorter.

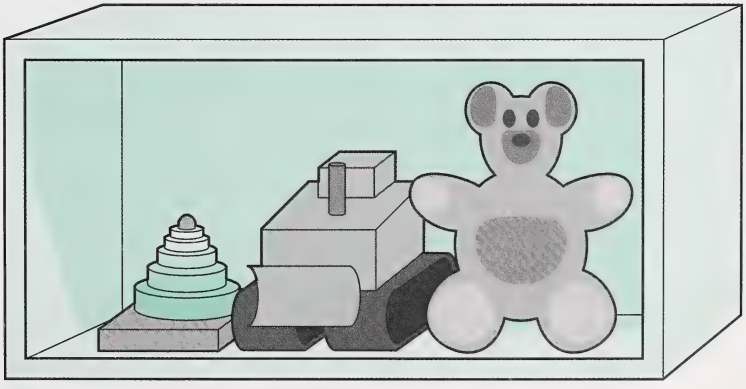
Continue long enough to be sure the student understands, but stop before the child loses interest.

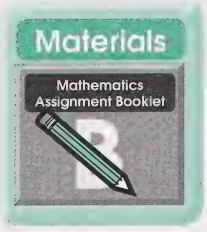


2. A Special Project

Step 1: Have your student place a collection of books, toys, or other objects on a bookshelf or table top and arrange the objects from shortest to tallest.

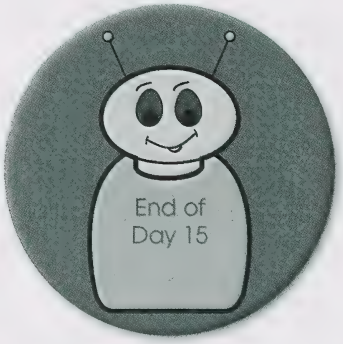
Step 2: Have the student choose a second set of objects and arrange them from tallest to shortest.





Turn to Mathematics Assignment Booklet 1B, and follow the directions to do both pages of the assignment for Day 15.

Then complete Day 15: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about being able to identify taller and shorter objects.



Day 16

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

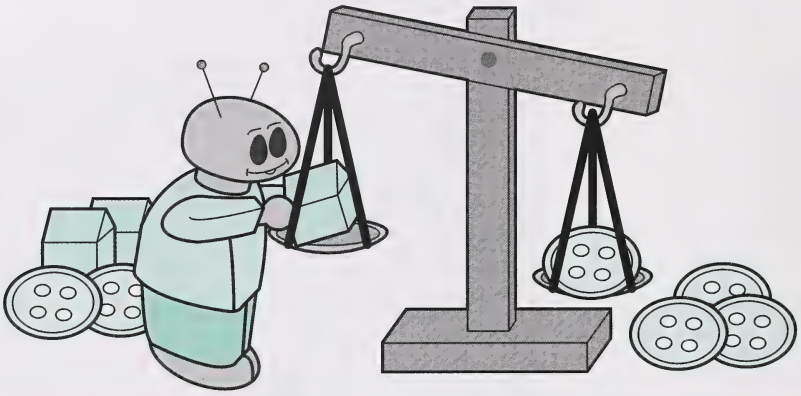
- identifying the heavier and lighter object
- ordering objects by weight

Vocabulary (spoken only)

weight	similar	base
mass	balance scale	balance/balanced
heavy/heavier/heaviest	arm	kilogram
light/lighter/lightest	pan	

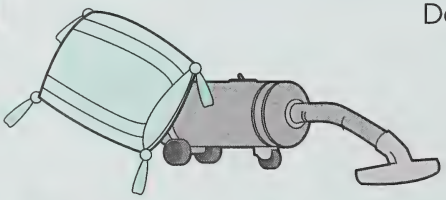
Materials Required

- materials on the master list
- one book and one shoe
- objects of distinctly and slightly different weights
- materials to make a balance scale, for example, wood slats, heavy cardboard, string, wire coat hanger, plastic tomato baskets, foil tart pans, cup hooks, paper rivets, and small nails (See illustrations included with the lesson.)
- collection of ten identical, small, light objects, for example, buttons, coins, or pasta
- bathroom scale (optional)



Encourage your student to make and check predictions about measurement comparisons.

Observe how your student compares the **weight**, or **mass**, of two objects. Comment later in Day 16: Learning Log.



Does the child

- consider only the sizes of objects?
- disregard sizes and focus only on mass?

Developing the Concept

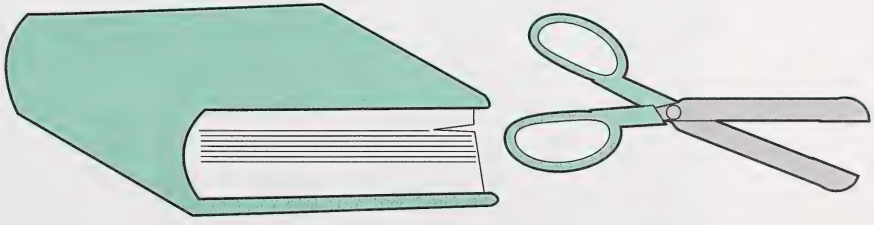
Put two objects, such as a book and a pair of safety scissors, in front of the student. Use the following script.

Today, you will learn about **weight**, or **mass**.

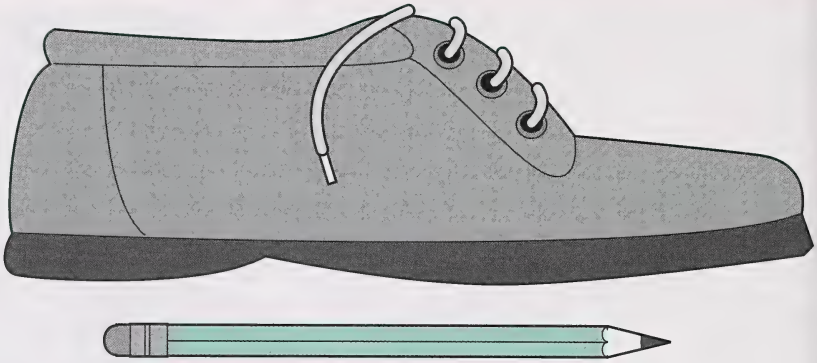
The words **weight** and **mass** mean how **heavy** something is.

Hold the book in your **left** hand and the scissors in your **right** hand.

Which do you think weighs more, or which do you think is **heavier**?



If the student finds it difficult to answer this question, tell which one is heavier, and then continue.

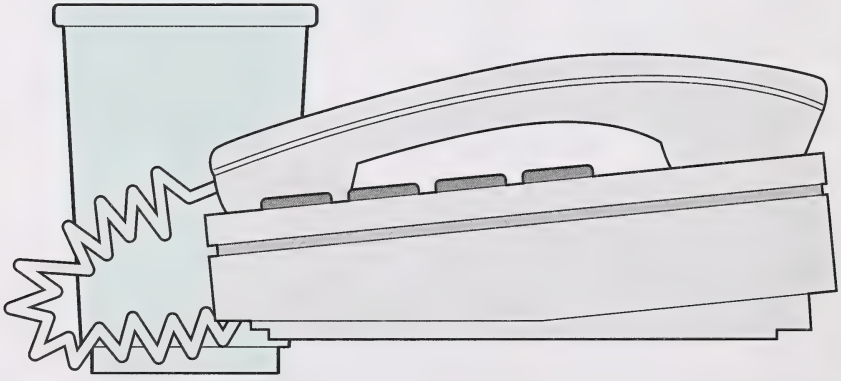


Now try this pencil and this shoe.

Which one is **heavier**? Which one is **lighter**?

If the student says that the pencil is heavier, ask why the pencil is thought to be heavier.

If the answer does not indicate clear understanding of lighter and heavier, have the student continue to compare objects of distinctly different weights, such as a telephone and a plastic cup.



Each time the student does not make the correct choice, give the answer in a sentence and ask the student to repeat it.

Continue until the student can readily determine a lighter or heavier object or until the child shows signs of fatigue. If your student continues to experience difficulty, revisit the activity later.

When the student can easily determine the lighter or heavier of two objects with distinctly different weights, ask for the same comparison with slightly different weights.

Hold this pen in your **left** hand and this pencil in your **right** hand.

Which object is heavier?

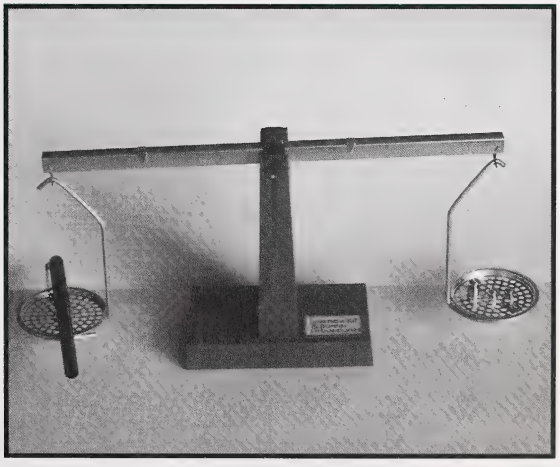
It is hard to tell, isn't it?

When we hold objects that are **similar** in weight, sometimes it is hard to tell which one is heavier and which one is lighter.

How else could we weigh objects, other than by holding them? (Accept any reasonable answer.)

We can weigh objects on a **balance scale**.

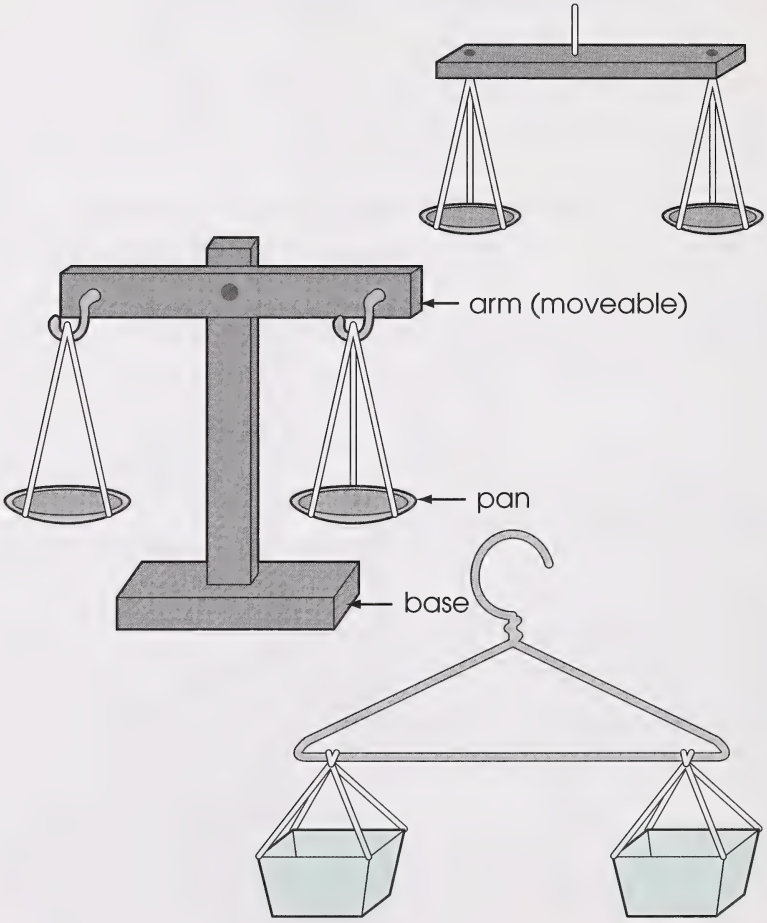
We are going to make a balance scale. Then we can weigh objects when it is difficult to tell which one is heavier and which one is lighter.



Making a Balance Scale

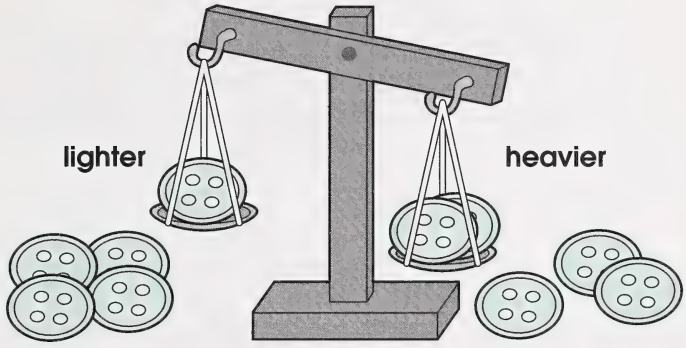
A **balance scale** is needed for some activities today. Help the student construct a scale similar to one of those in the following illustrations. See Materials Required for suggested materials.

As you are making the scale, discuss what it can be used for and its different features. Your student's involvement will lead to learning about weight and balance.



When the balance scale is ready, place five of your ten small objects in the left scale container and five in the right. The scale should be balanced, as those shown in the illustrations. **Balance** occurs when opposite sides are the same.

If the balance pan on one end is higher than the other, then the higher end is lighter. Explain this to the student as you place items on the scale.



Continue with the following directions.

When the **arms** of the scale are straight across, the scale is **balanced**.

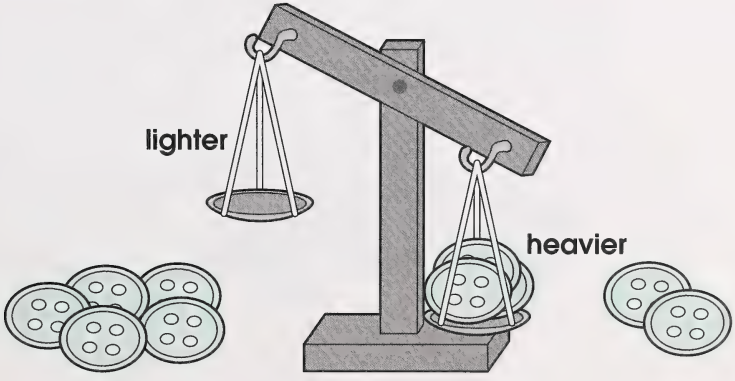
Move 1 of the 5 objects from the **left** scale **pan** to the **right** scale pan.

What happened to the **right** scale pan?

Why did it move **downward**?

Could we say that the **right** scale pan is **heavier**? Why (or why not)?

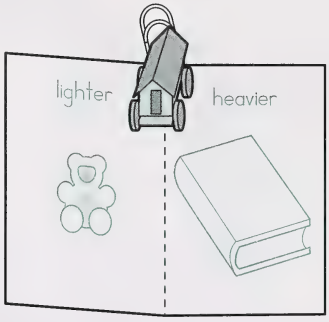
Continue until no objects remain in the left container.



Applying the Concept

My Heavier and Lighter Booklet

Step 1: Fold a piece of unlined paper in half from top to bottom. Turn it sideways, and print the word **lighter** at the top of the left side and the word **heavier** at the top of the right side, as shown below.

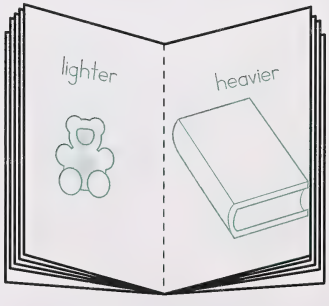


Step 2: Have the student identify items around the room that may be heavier or lighter than a reference item, for example, a book or small toy. Use the scale to check the predictions.

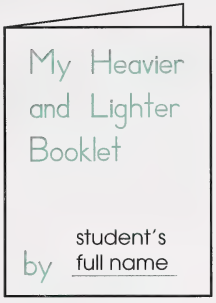
Ask the student to draw illustrations of the heavier and lighter objects on the correct sides of the folded paper.

Step 3: Repeat this procedure on four more pieces of paper.

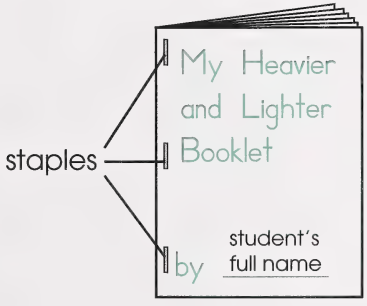
When the student has completed five heavier and lighter comparison pages, place one page on top of the other.

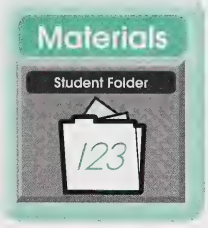


Step 4: Fold a piece of construction paper in half to be the front and back cover pages.



Insert the comparison pages between the cover pages, and staple all pages together along the fold.





Step 5: Have the student print the abbreviated form of the module and day numbers, M1D16, on the back of the booklet.

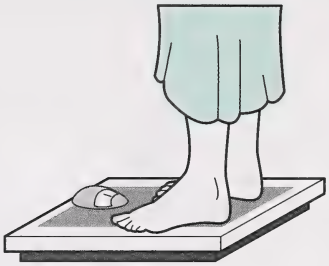
Encourage the student to talk about the booklet with family and friends. Then place the booklet in the Student Folder.

Consider giving the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.

Enrichment (optional)

1. What's Your Weight?

Step 1: Weigh the student on a bathroom scale, and have the student read the numbers in kilograms.



Step 2: Turn sideways a sheet of unlined paper. At the top of the left side, record the date, the student's name, and the student's weight by having the student complete and print the following sentence.

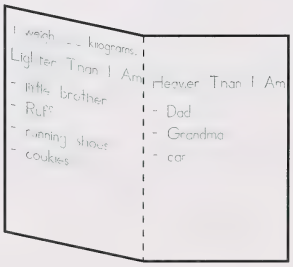
I weigh ____ kilograms.

Step 3: Explain that the term **kilogram** is a special unit of weight, or mass. This special unit is used to measure people and objects, such as vegetables for sale.

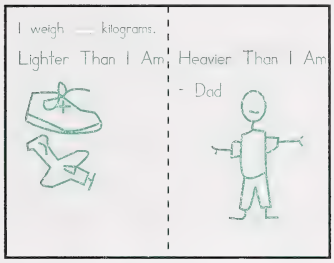
Step 4: Fold in half the sheet of paper from Step 2.

Step 5: Below the sentence that states the student's weight, print **Lighter Than I Am** and **Heavier Than I Am**.

Step 6: Have the student weigh other people or items and record the names or items under the correct heading, Lighter Than I Am or Heavier Than I Am.



If the student has difficulty printing, suggest drawing pictures or doing a combination of printing and drawing.



2. Heavy, Heavier, and Heaviest Game

Step 1: Collect a variety of objects and place them in a box. The items gathered on Day 10 may be used here.

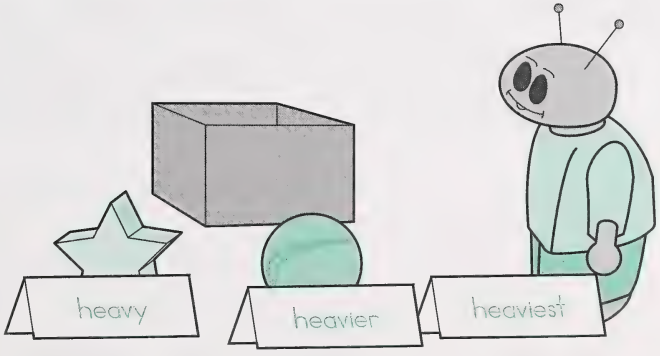
Step 2: Ask the student to pick three objects from the box.

Step 3: Have the student compare two of the objects at a time and decide which one is the heavier and which one is the lighter.

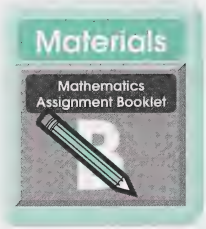
Step 4: Ask the student to arrange the three objects in order from heavy to heaviest.

Step 5: Construct three word cards. Have the student print the word **heavy** on one card, the word **heavier** on another card, and the word **heaviest** on the third card.

Step 6: Place the correct word card in front of each item.



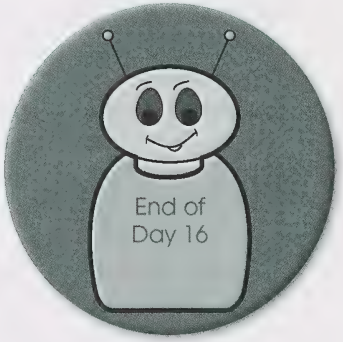
Step 7: Take turns choosing three different objects and repeating the game.



Turn to Mathematics Assignment Booklet 1B, and follow the directions to do Day 16: Assignment 1.

Next, follow the directions to complete Day 16: Assignment 2.

Then complete Day 16: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematic's learning, for example, about being able to identify heavier and lighter objects.



Day 17

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

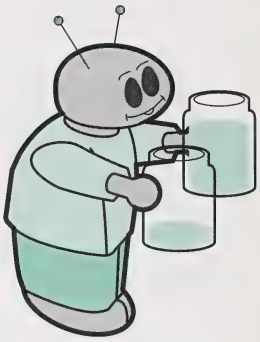
Time recommended: 45 minutes

- identifying containers that hold more
- identifying containers that hold less

Vocabulary (spoken only)

predictions	more	estimate
capacity	less	too much
funnel	same amount	not enough
holds	unit of measurement	just right

Materials Required



- materials on the master list
- collection of at least ten non-breakable containers of various shapes
- water
- paper or plastic cup
- cloth to wipe up spills
- funnel and scoop (optional)
- sand, rice, salt, or another dry, pourable material (optional)
- pitcher and five equal-sized cups (optional)

Today, your student will make and check **predictions** about the **capacity** of different containers. *Capacity* means the largest volume that can be held in a space.

You will help your student discover that using similar-sized and -shaped containers makes comparison easier than using different-sized and -shaped containers.

Observe as your student predicts capacity so you can comment on your observations later in Day 17: Learning Log.

- Does the student make accurate predictions?
- Does the student examine only the height of the container?
- Are all dimensions of the containers taken into account?

Developing the Concept

Ask your student to help collect the non-breakable containers mentioned in Materials Required. Choose an appropriate place and time for the student to make and check predictions about the capacity of these containers—for example, during bath time.

Begin by running water in a bathtub or sink. Give the student free exploration time with the water and containers. A **funnel** will make it easier to fill narrow-necked containers.

After exploration time, give the student two of the containers, and ask which holds more water and which holds less.

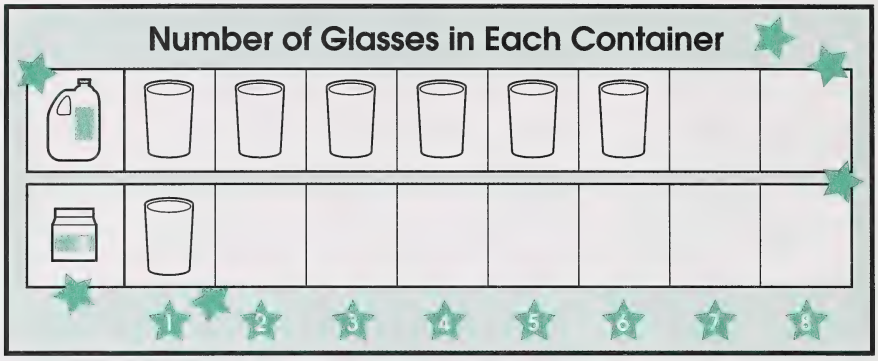
Guide this discovery with the following script.

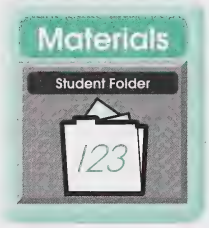
How can you find out which container **holds more** water and which one holds **less**?

Encourage the student to suggest ways to discover this.

If the student has trouble, suggest filling a plastic glass or paper cup and pouring it into each larger container as many times as necessary to fill it. If the student can only count to five and a container holds more than five cups, help with counting.

Help the student record findings on a graph similar to the following.



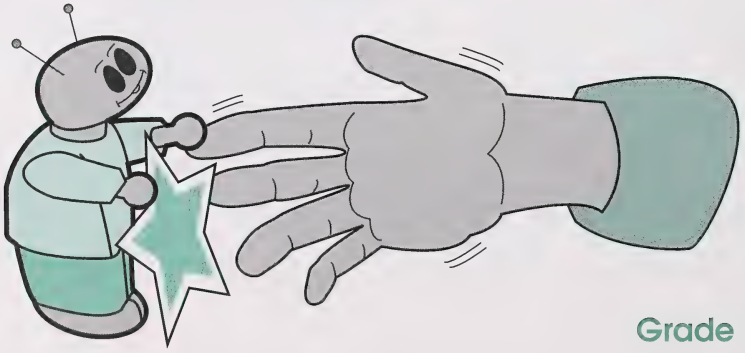


Ask the student to print first and last names and the abbreviated form of the module and day numbers, M1D17, on the back. Then place the graph in the Student Folder.

Young children often make comparisons about the capacity of containers based on height rather than volume. For example, most children will say that a taller container holds more, even if a shorter one has a greater volume.

Continue to give your student the opportunity to make comparisons, keeping in mind that he or she is a developing learner and over time will grasp the concept.

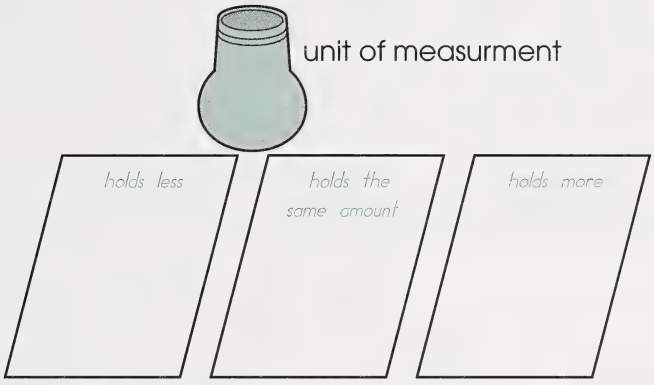
Give the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



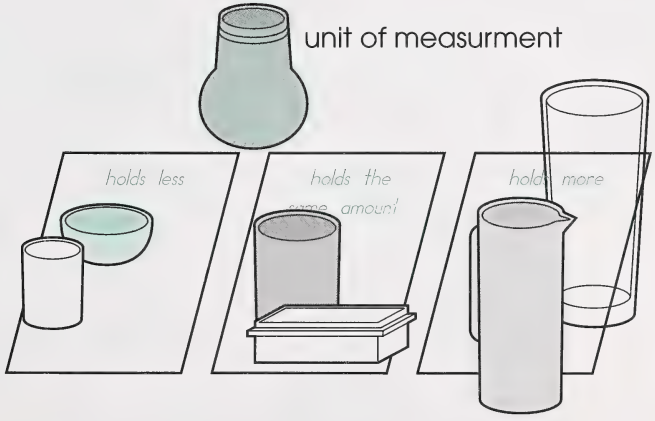
Applying the Concept

Gather ten containers, some of which hold approximately the same amount. Label three sheets of construction paper **holds less**, **holds the same amount**, and **holds more**.

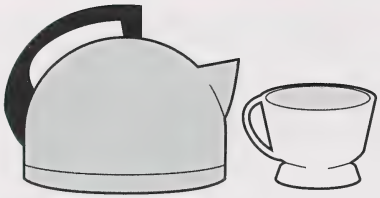
Ask the student to choose one container as the **unit of measurement** and place it near the three sheets of paper.



Have the student **estimate** and sort containers that hold less, hold the same amount, and hold more than the unit of measurement.



At a sink or bathtub, ask the student to fill each container with water and test the container against the unit of measurement. Encourage the student to fill each container to the top in order to make accurate comparisons. If necessary, have the student re-sort the containers according to the information learned during testing.



Enrichment (optional)

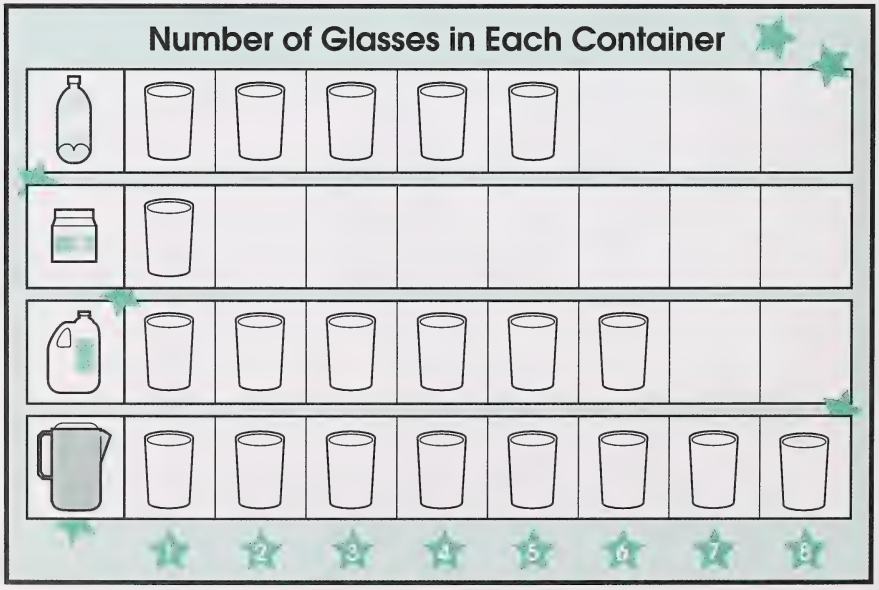
1. Measuring the Amount

Step 1: Collect ten empty containers, of which three or four will hold the **same amount** of a pourable material such as sand, rice, or water. You also need a cup or scoop to use as a standard **unit of measurement**.

Step 2: Ask the student to predict capacity and sort the containers that hold less, more, and the same amount as the standard container.

Step 3: Ask the student to use the standard cup or scoop to fill the other containers and check the predictions.

Step 4: Assist in recording the findings. Discuss how the predictions compare with the actual measurements.



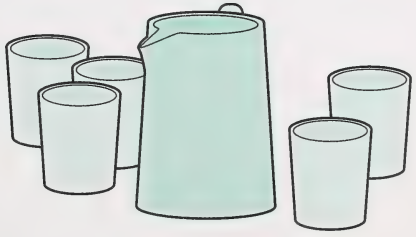
2. Filling the Pitcher

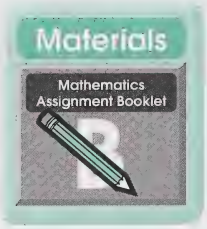
Step 1: Set out a pitcher full of water and five equal-sized cups. Place the cups in a sink or bathtub, or do this activity outdoors.

Step 2: Invite the student to predict whether the pitcher of water will be **too much** for the five cups of water, **not enough**, or **just right**.

Step 3: Ask the student to check this prediction by filling the cups with water from the pitcher. Have the student help wipe up spills. If necessary, refill the pitcher to its original level.

Step 4: Encourage experimentation with different containers and numbers or sizes of cups.





Turn to Mathematics Assignment Booklet 1B, and complete the assignment for Day 17.

Then complete Day 17: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about being able to identify containers that hold more or less.

Day 18

Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

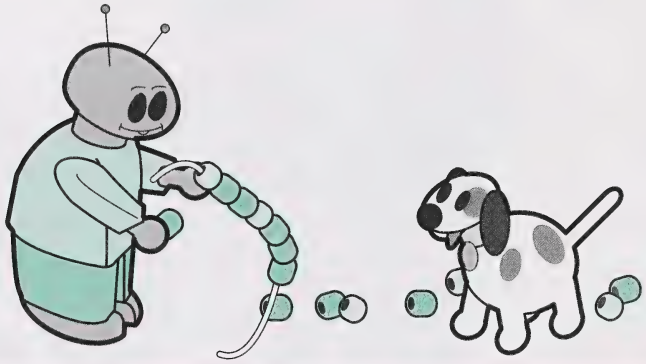
- identifying, copying, and extending patterns

Vocabulary (spoken only)

pattern
sorting
patterning
repeat
extend

Materials Required

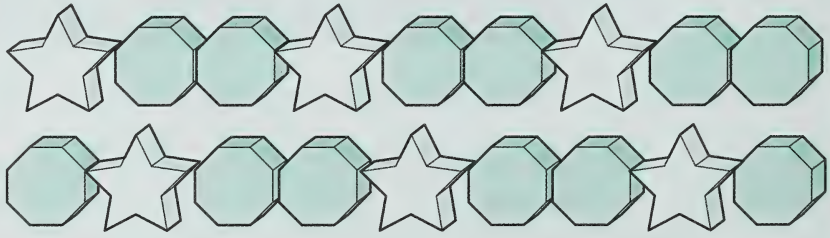
- materials on the master list
- collection of items that can be used to make patterns, for example, deck of playing cards, geometric shapes, coloured blocks, or buttons
- collection of items that can be strung onto thin wire to make a necklace, for example, large beads, pieces of drinking straws, macaroni, or buttons (optional)
- thin wire, string, shoelaces, or similar material (optional)
- collection of coloured paper (optional)



Activities

Teaching Tip

Today, your student will learn about patterns that can be seen and patterns that can be heard. A **pattern** is the way in which lines, shapes, colours, sounds, or actions are arranged or repeated in the same order.



Sorting and **patterning** are important skills, because students need them in all subject areas. Both involve problem-solving strategies such as using models, predicting and checking, and observing similarities and differences.

Developing the Concept

Choose a room that displays several different patterns, or look outside for patterns. Add items from other places as well, for example, a quilt from a bedroom if you are working in the kitchen.

Sit side by side with the student for your discussion of patterns.

Today, you will learn about **patterns**.

Patterns are in colours, shapes, lines, sounds, or actions that happen over and over.

Direct the student's attention to patterns around you—on the wallpaper, floor, tablecloth, or dishes. When you have identified and discussed all the patterns you see, continue the script.

The patterns we talked about are ones you can see.

Here is a pattern you can see and hear.

Listen carefully, and **repeat** what you hear.

Slap your knees, clap your hands, slap your knees, clap your hands. Ask the student to repeat these actions. Help, if necessary.

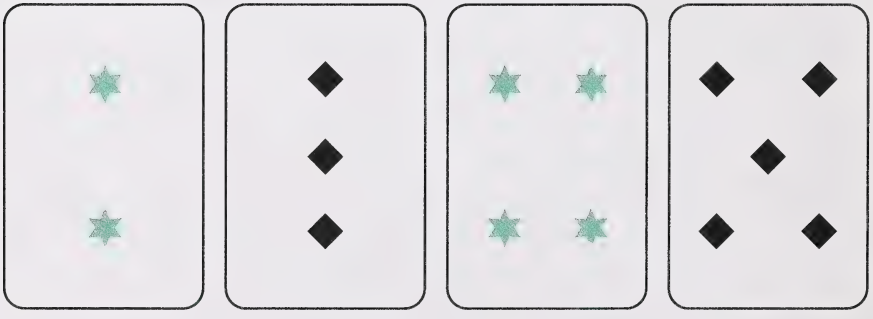
Change the pattern to slap your knees, clap your hands, clap your hands. Ask the student to repeat this pattern.

Continue by changing the pattern several times. Then get out a deck of playing cards or another collection of items that can be used to make patterns. Say the following.

Here is another pattern you can see.

Sort through the cards with your student, and pull out all cards numbered 2, 3, 4, and 5. Say you are going to make a pattern with these cards.

Lay down a red 2 card, black 3 card, red 4 card, and black 5 card.



Ask the student to **extend** the pattern you made, ignoring the card suits and concentrating only on the colours and numbers.

Give help if needed. Repeat several times using different patterns.

Applying the Concept

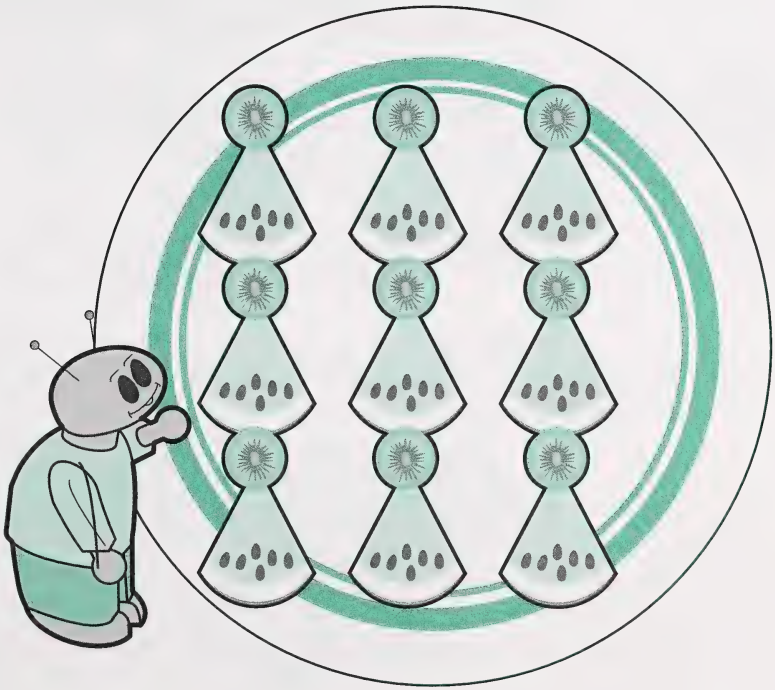
Draw a variety of patterns using lines, shapes, or colours.

Have the student copy and extend each pattern twice. For example, on an unlined sheet of paper, make the following line pattern.

Ask your student to copy and extend this pattern.

If the student seems ready, take turns making, copying, and extending patterns until the student has practised various patterns.

For added fun, make food patterns for family meals and snacks. An example is a plate with alternating watermelon and kiwi slices.

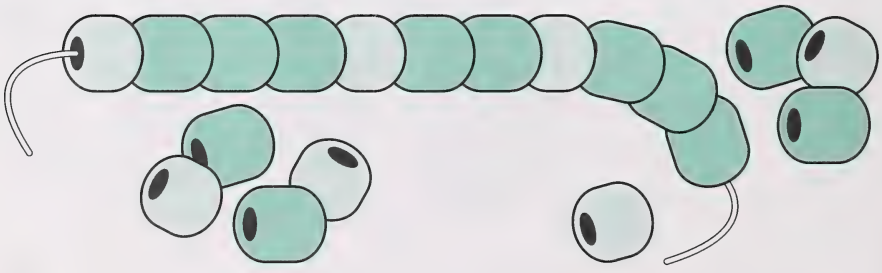


Enrichment (optional)

1. Pattern Jewellery

Step 1: Collect objects that can be strung to make a necklace. See Materials Required for ideas.

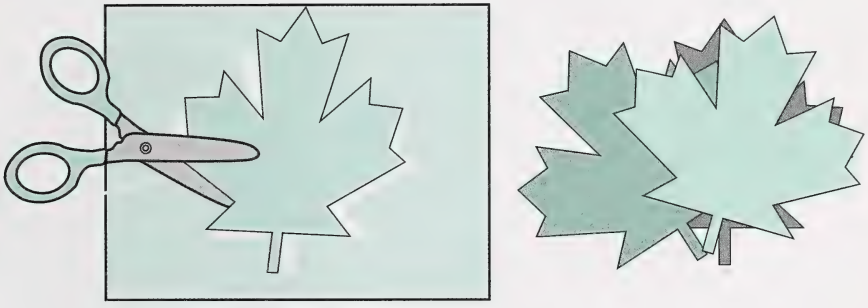
Step 2: Give the student a shoelace or other string-like material to make a necklace with a repeating pattern.



2. Seasonal Decoration Patterns

Step 1: Gather coloured paper, a pencil, and a pair of scissors.

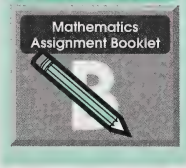
Step 2: Show your student how to cut out coloured, seasonal shapes, such as red leaves, orange leaves, and brown leaves, or orange pumpkins and red apples.



Step 3: Ask the student to attach one shape to the next in a pattern, for example, red leaf, orange leaf, brown leaf, red leaf, orange leaf, brown leaf.

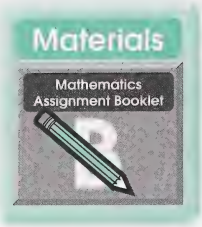
Step 4: Display the pattern at the student's eye level. Encourage the student to challenge others to identify the pattern.

Materials



Turn to Mathematics Assignment Booklet 1B, and follow the directions to do the assignment for Day 18.

Then complete Day 18: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about being able to identify and extend patterns.



At the end of Mathematics Assignment Booklet 1B, follow the directions to complete Day 18, Student Folder Items. Gather the required materials from your Student Folder. Submit these items to your student's teacher for marking at the time the teacher has requested them.

Congratulations!
You have completed
Mathematics Module 1.

Credits

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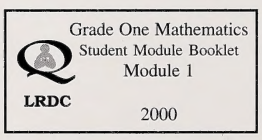
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